



west virginia department of environmental protection

Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304  
(304) 926-0450  
fax: (304) 926-0452

Jim Justice , Governor  
Austin Caperton , Cabinet Secretary  
www.dep.wv.gov

Wednesday, March 08, 2017  
WELL WORK PERMIT  
Horizontal 6A / Re-Work

ANTERO RESOURCES CORPORATION (A)  
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit approval for FORD UNIT 1H  
47-033-05702-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.



James A. Martin  
Chief

Operator's Well Number: FORD UNIT 1H  
Farm Name: BLAND, HUBERT JR. AND LORENA  
U.S. WELL NUMBER: 47-033-05702-00-00  
Horizontal 6A / Re-Work  
Date Issued: 3/8/2017

Promoting a healthy environment.

03/10/2017

# PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

## CONDITIONS

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1. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
2. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
3. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
4. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
5. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
6. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to [DEPOOGNotify@wv.gov](mailto:DEPOOGNotify@wv.gov).

4703305702 F



Antero Resources  
1615 Wynkoop Street  
Denver, CO 80202  
Office 303.357.7310  
Fax 303.357.7315

CK 42763  
51500

November 7, 2014

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
Attn: John Kearney  
601 57<sup>th</sup> Street  
Charleston, WV 25304

Mr. Kearney:

Please find enclosed the **Interim** Well Operator's Report of Well Work, Form WR-35 (including As-Drilled Survey Plat and Directional Survey) and Discharge Monitoring Report, Form WR-34 for the following wells:

- Ford Unit 1H (API# 47-033-05702) -Hubert Pad
- Ford Unit 2H (API# 47-033-05694) -Hubert Pad
- Nellie Unit 2H ((API# 47-033-05687) -Hubert Pad

Please note that we have requested permit releases for these wells since the permits will expire before completion activities will commence. Inspector Sam Ward emailed the appropriate releases to Patty Miller on October 23, 2012, but I have included them for your reference. We will be submitting new permit applications requesting approval to perforate, fracture and complete the subject wells.

If you have any questions please feel free to contact me at (303) 357-7323.

Sincerely,

A handwritten signature in blue ink that reads "Ashlie Steele".

Ashlie Steele  
Permitting Supervisor  
Antero Resources Corporation

Enclosures

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WW-6B  
(04/15)

API NO. 47- 033 - 05702  
OPERATOR WELL NO. Ford Unit 1H  
Well Pad Name: Existing Hubert Pad

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
WELL WORK PERMIT APPLICATION

1) Well Operator: Antero Resources Corporation 494507062 033 - Harris Tenmile Salem & Big Isaac  
Operator ID County District Quadrangle

2) Operator's Well Number: Ford Unit 1H Well Pad Name: Existing Hubert Pad

3) Farm Name/Surface Owner: Hubert Jr. & Lorena Bland Public Road Access: CR 50/6

4) Elevation, current ground: 1376' Elevation, proposed post-construction: 1376'

5) Well Type (a) Gas  Oil  Underground Storage

Other \_\_\_\_\_

(b) If Gas Shallow  Deep

Horizontal

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus Shale: 7546' TVD, Anticipated Thickness- 50 feet, Associated Pressure- 3200#

8) Proposed Total Vertical Depth: 7546' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16966' MD

11) Proposed Horizontal Leg Length: 9127'

12) Approximate Fresh Water Strata Depths: 391'

13) Method to Determine Fresh Water Depths: Norris Unit 1H (API #47-033-05699) on same pad.

14) Approximate Saltwater Depths: 1210', 1832'

15) Approximate Coal Seam Depths: None Identified

16) Approximate Depth to Possible Void (coal mine, karst, other): None Anticipated

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes  No

(a) If Yes, provide Mine Info: Name: \_\_\_\_\_

Depth: \_\_\_\_\_

Seam: \_\_\_\_\_

Owner: \_\_\_\_\_

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18) **CASING AND TUBING PROGRAM**

<b>TYPE</b>	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	20"	New	H-40	94#	40'	40'	CTS, 38 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/48#	539' *See #19	539' *See #19	CTS, 749 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2604'	2604'	CTS, 1060 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	16996'	16996'	4235 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

SDW  
12/7/2016

<b>TYPE</b>	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	30"	24"	0.438"	1530	50	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"/0.33"	2730/1730	1000	Class A	1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	1500	Class A	1.18
Intermediate							
Production	5-1/2"	8-3/4" & 8-1/2"	0.361"	12,630	2500	Lead-H/POZ & Tail-H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

**PACKERS**

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

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WW-6B  
(10/14)

API NO. 47- 033 - 05702  
OPERATOR WELL NO. Ford Unit 1H  
Well Pad Name: Existing Hubert Pad

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

This well has been drilled to TD - 16,966'. Antero is requesting approval to perforate, fracture the existing horizontal shallow well and complete Marcellus Shale.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Antero plans to pump Slickwater into the Marcellus Shale formation in order to ready the well for production. The fluid will be comprised of approximately 99 percent water and sand, with less than 1 percent special-purpose additives as shown in the attached "List of Anticipated Additives Used for Fracturing or Stimulating Well."

Anticipated Max Pressure - 9300 lbs  
Anticipated Max Rate - 80 bpm

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 20.73 Existing Acres

22) Area to be disturbed for well pad only, less access road (acres): 3.22 Existing Acres

23) Describe centralizer placement for each casing string:

Conductor: no centralizers  
Surface Casing: one centralizer 10' above the float shoe, one on the insert float collar and one every 4th joint spaced up the hole to surface.  
Intermediate Casing: one centralizer above float joint, one centralizer 5' above float collar and one every 4th collar to surface.  
Production Casing: one centralizer at shoe joint and one every 3 joints to top of cement in intermediate casing.

24) Describe all cement additives associated with each cement type:

Conductor: no additives, Class A cement.  
Surface: Class A cement with 2-3% calcium chloride and 1/4 lb of flake  
Intermediate: Class A cement with 1/4 lb of flake, 5 gallons of clay treat  
Production: Lead cement- 50/50 Class H/Poz + 1.5% salt + 1% C-45 + 0.5% C-16a + 0.2% C-12 + 0.45% C-20 + 0.05% C-51  
Production: Tail cement- Class H + 45 PPS Calcium Carbonate + 1.0% FL-160 + 0.2% ACGB-47 + 0.05% ACSA-51 + 0.2% ACR-20

25) Proposed borehole conditioning procedures:

Conductor: blowhole clean with air, run casing, 10 bbls fresh water.  
Surface: blowhole clean with air, trip to conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pipe capacity + 40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.  
Intermediate: blowhole clean with air, trip to surface casing shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate 40 bbls brine water followed by 10 bbls fresh water and 25 bbls bentonite mud, pump 10 bbls fresh water.  
Production: circulate with 14 lb/gal NaCl mud, trip to middle of lateral, circulate, pump high viscosity sweep, trip to base of curve, pump high viscosity sweep, trip to top of curve, trip to bottom, circulate, pump high viscosity sweep, trip out, run casing, circulate 10 bbls fresh water, pump 48 bbls barite pill, pump 10 bbls fresh water followed by 48 bbls mud flush and 10 bbls water.

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\*Note: Attach additional sheets as needed.

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Ford Unit 1H - AOR



 WELL SYMBOLS  
Gas Well

November 12, 2016

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FORD UNIT 1H (HUBERT PAD) - AREA OF REVIEW 35-8-5710 PAGE 25 7 0 2 F

Well ID/Name	Well Name	Well Number	Operator	Midstream Operator	TD	OLEV GR	TD (WELT)	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producing Formation(s) not part 1
432240353000	COMPTON 1 B H208	1	CHASE ENERGY HOLDING	CHASE ENERGY HOLDING CO	3524	3504	<=134	2702-2717	Santon, Devon, Silica, Devon, Devonian	Oil Shale, Devon, Devonian, Silurian, Sil

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State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Well Operator's Report of Well Work

API 47-033-05702 County Harrison District Tenmile  
Quad Salem Pad Name Hubert Field/Pool Name \_\_\_\_\_  
Farm name Hubert, Jr. & Lorena Bland Well Number Ford Unit 1H  
Operator (as registered with the OOG) Antero Resources Corporation  
Address 1615 Wynkoop Street City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4344995.60 Easting 537953.88  
Landing Point of Curve Northing 4345357.10 Easting 538188.23  
Bottom Hole Northing 4347948.11 Easting 537394.04

Elevation (ft) 1376' GL Type of Well  New  Existing Type of Report  Interim  Final  
Permit Type  Deviated  Horizontal  Horizontal 6A  Vertical Depth Type  Deep  Shallow  
Type of Operation  Convert  Deepen  Drill  Plug Back  Redrilling  Rework  Stimulate  
Well Type  Brine Disposal  CBM  Gas  Oil  Secondary Recovery  Solution Mining  Storage  Other \_\_\_\_\_  
Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other Not yet completed  
Drilled with  Cable  Rotary

Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine  
Mud Type(s) and Additive(s)  
Air- Foam & 4% KCL  
Mud- Polymer

Date permit issued 12/27/2012 Date drilling commenced 3/22/2014 Date drilling ceased 8/23/2014  
Date completion activities began \_\_\_\_\_ WOC Date completion activities ceased N/A  
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

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Freshwater depth(s) ft 391' Open mine(s) (Y/N) depths \_\_\_\_\_  
Salt water depth(s) ft 1832' Void(s) encountered (Y/N) depths \_\_\_\_\_  
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths \_\_\_\_\_  
Is coal being mined in area (Y/N) N

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Environmental Protection  
Reviewed by: \_\_\_\_\_

**APPROVED**

NAME: Jackie Johnston  
DATE: 11/22/2016

03/10/2017

WR-35  
Rev. 8/23/13

Page \_\_\_ of \_\_\_

API 47-033 - 05702 Farm name Hubert, Jr. & Lorena Bland Well number Ford Unit 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	40'	New	94#	N/A	Y
Surface	17- 1/2"	13- 3/8"	539'	New	48#	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2604'	New	36#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	16,966'	New	23#	N/A	Y
Tubing							
Packer type and depth set		N/A					

Comment Details \_\_\_\_\_

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>2</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Class A	200 sx	15.6	1.18	38	0	8 Hrs.
Surface	Class A	626 sx	15.6	1.18	374	0	8 Hrs.
Coal							
Intermediate 1	Class A	947 sx	15.6	1.18	816	0	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	2650 sx	14.5 Lead 15.2 Tail	1.3 Lead 1.87 Tail	3405	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 16,966' MD, 7546' TVD; 7551' TVD (Deepest point drilled) Loggers TD (ft) 16,909'  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 4920'

Check all wireline logs run  caliper  density  deviated/directional  induction  neutron  resistivity  gamma ray  temperature

\*\* This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Nellie Unit 2H AP# 47-033-05687). Please reference the wireline logs submitted with Form WR-35 for the Nellie Unit 2H. A Cement Bond Log has been included with this submittal.

Well cored  Yes  No  Conventional  Sidewall Were cuttings collected  Yes  No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING \_\_\_\_\_

Conductor- 0  
 Surface- 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface  
 Intermediate- 1 above float joint, 1 above float collar, 1 every 4th joint to surface  
 Production- 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

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WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS Waiting on Completion

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WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS Waiting on Completion

WV Department of

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED Waiting on Completion

Environmental Protection







API 47-033-05702 Farm Name Hubert Jr & Lorena Bland, Well Number Ford Unit 1H						
EXHIBIT 1						
LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)	ROCK TYPE	FLUID PRODUCED
Big Lime	est. 2280'	2393'	est. 2280'	2393'	Limestone	
Big Injun	est. 2394'	2781'	est. 2394'	2781'	Sandstone	
Gantz Sand	est. 2782'	2879'	est. 2782'	2879'	Sandstone	
Fifty Foot Sandstone	est. 2880'	2990'	est. 2880'	2990'	Sandstone	
Gordon	est. 2991'	3314'	est. 2991'	3314'	Sandstone	
Fifth Sandstone	est. 3315'	3349'	est. 3315'	3349'	Sandstone	
Bayard	est. 3350'	3919'	est. 3350'	3919'	Sandstone	
Speechley	est. 3920'	4429'	est. 3920'	4429'	Sandstone	
Baltown	est. 4430'	4759'	est. 4437'	4786'	Sandstone	
Bradford	est. 4760'	5280'	est. 4787'	5353'	Sandstone	
Benson	est. 5281'	5558'	est. 5354'	5658'	Sandstone	
Alexander	est. 5559'	5788'	est. 5659'	5906'	Sandstone	
Elk	est. 5789'	6900'	est. 5907'	7074'	Sandstone	
Sycamore	6901'	7118'	7075'	7312'	Sandstone	
Middlesex	7119'	7269'	7313'	7486'	Shale	
Burkett	7270'	7297'	7487'	7521'	Shale	Gas
Tully	7298'	7455'	7522'	7825'	Limestone	N/A
Marcellus	7456'	7551'	7826'		Shale	Gas

\*Please note Antero determines formation tops based on wireline logs that are only run on one well on a multi-well pad (Please referenece Nellie Unit 2H #47-033-05687). The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.





**Ford Unit 1H**  
**Harrison County West Virginia**  
 Northing: 14254490.84  
 Easting: 1764889.92



To convert Magnetic North to Grid, Subtract 8.60°  
 To convert True North to Grid, Subtract 0.28°

Azimuths to Grid North  
 True North: -0.28°  
 Magnetic North: -8.90°  
 Magnetic Field  
 Strength: 52205.6snT  
 Dip Angle: 66.81°  
 Date: 7/2/2014  
 Model: BGGM2014

**As Drilled**

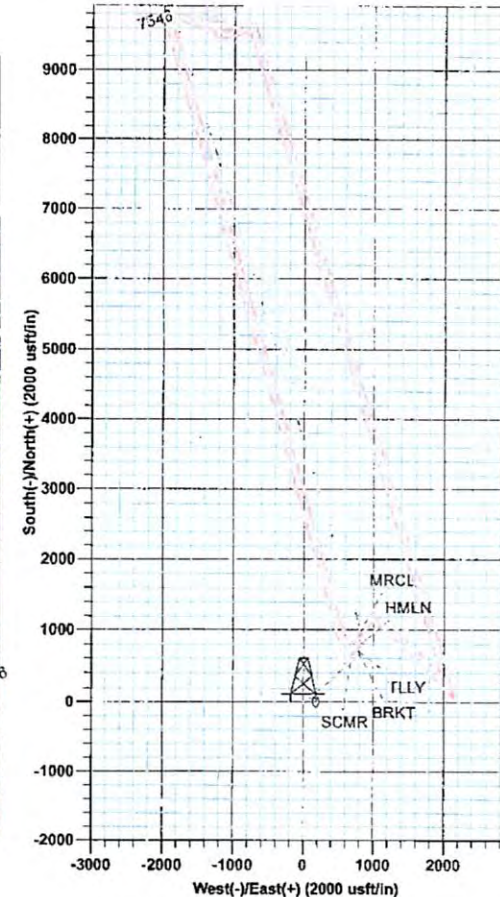
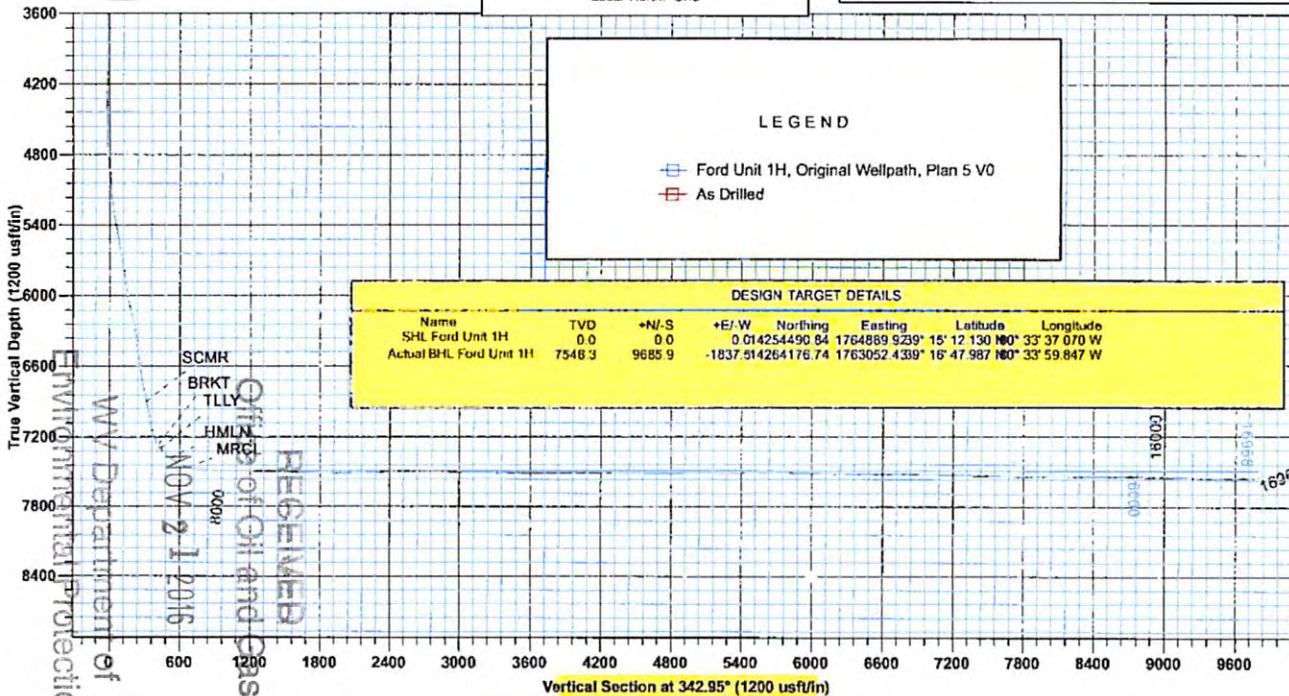
WELL DETAILS		Ground Level: 1374.0	
+N/-S	+E/-W	Northing	Easting
0.0	0.0	14254490.84	1764889.92
			39° 15' 12.130 N
			80° 33' 37.070 W

Genie Lightfoot  
 14:03, August 27 2014  
 Scientific Drilling  
 421 South Eagle Lane  
 Oklahoma City, OK 73128

**SITE DETAILS:** Ruth/Norris/Nelle/Ford Pad  
 Site Center: Ruth Unit 2H  
 Site Centre Northing: 14254530.66  
 Easting: 1764845.07  
 Positional Uncertainty: 2.0  
 Convergence: 0.28  
 Local North: Grid

**PROJECT DETAILS:** Harrison County West Virginia  
 Geodetic System: Universal Transverse Mercator (US Survey Feet)  
 Datum: NAD 1927 (NADCON CONUS)  
 Ellipsoid: Clarke 1866  
 Zone: Zone 17N (84 W to 78 W)  
 System Datum: Mean Sea Level

Patterson 340: CL 1374' ± 24' RKB @ 1398.0usft  
 1374.0



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## **Antero Resources**

**Harrison County West Virginia  
Ruth/Norris/Nellie/Ford Pad  
Ford Unit 1H  
Original Wellpath**

**Design: As Drilled**

## **EOW Completion Report**

**27 August, 2014**

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03/10/2017



**Company:** Antero Resources  
**Project:** Harrison County West Virginia  
**Site:** Ruth/Norris/Nellie/Ford Pad  
**Well:** Ford Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Ford Unit 1H  
**TVD Reference:** Patterson 340: GL 1374' + 24' RKB @ 1398.0usft  
**MD Reference:** Patterson 340: GL 1374' + 24' RKB @ 1398.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Oklahoma District

<b>Project</b>	Harrison County West Virginia, Harrison County, USA		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Fee	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Zone 17N (84 W to 78 W)		

**Site** Ruth/Norris/Nellie/Ford Pad

**Site Position:** **Northing:** 14,254,530.66 usft **Latitude:** 39° 15' 12.526 N  
**From:** Map **Easting:** 1,764,845.07 usft **Longitude:** 80° 33' 37.638 W  
**Position Uncertainty:** 2.0 usft **Slot Radius:** 13-3/16" **Grid Convergence:** 0.28 °

**Well** Ford Unit 1H

**Well Position** **+N/-S** 0.0 usft **Northing:** 14,254,490.84 usft **Latitude:** 39° 15' 12.130 N  
**+E/-W** 0.0 usft **Easting:** 1,764,889.92 usft **Longitude:** 80° 33' 37.070 W  
**Position Uncertainty** 2.0 usft **Wellhead Elevation:** 1,398.0 usft **Ground Level:** 1,374.0 usft

<b>Wellbore</b>	Original Wellpath				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2014	7/2/2014	-8.62	66.81	52,206

**Design** As Drilled

**Audit Notes:**

**Version:** 1.0 **Phase:** ACTUAL **Tie On Depth:** 0.0

<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	342.95

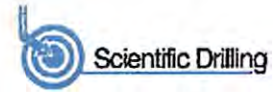
<b>Survey Program</b>	<b>Date</b> 8/27/2014			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
95.7	7,174.9	Survey #6 Gyro to KOP (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
7,175.0	16,966.0	Survey #7 MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
95.7	0.20	300.40	95.7	0.1	-0.1	0.1	0.21
120.7	0.05	154.57	120.7	0.1	-0.2	0.1	0.97
145.7	0.04	40.68	145.7	0.1	-0.2	0.1	0.30
170.7	0.09	27.36	170.7	0.1	-0.2	0.2	0.21
195.7	0.17	10.74	195.7	0.2	-0.1	0.2	0.35
220.7	0.19	338.26	220.7	0.2	-0.1	0.3	0.41
245.7	0.17	310.31	245.7	0.3	-0.2	0.4	0.36
270.7	0.10	217.02	270.7	0.3	-0.2	0.4	0.81
295.7	0.13	179.99	295.7	0.3	-0.2	0.3	0.31
320.7	0.13	157.85	320.7	0.2	-0.2	0.3	0.20

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EOW Completion Report



**Company:** Antero Resources  
**Project:** Harrison County West Virginia  
**Site:** Ruth/Norris/Nellie/Ford Pad  
**Well:** Ford Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Ford Unit 1H  
**TVD Reference:** Patterson 340: GL 1374' + 24' RKB @ 1398.0usft  
**MD Reference:** Patterson 340: GL 1374' + 24' RKB @ 1398.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Oklahoma District

Survey

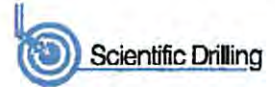
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
345.7	0.10	123.60	345.7	0.2	-0.2	0.2	0.29
370.7	0.06	57.84	370.7	0.2	-0.2	0.2	0.37
395.7	0.05	19.44	395.7	0.2	-0.2	0.2	0.15
420.7	0.03	136.96	420.7	0.2	-0.2	0.2	0.28
445.7	0.21	166.83	445.7	0.1	-0.1	0.2	0.74
470.7	0.31	163.16	470.7	0.0	-0.1	0.1	0.41
495.7	0.27	148.34	495.7	-0.1	-0.1	-0.1	0.34
520.7	0.28	134.67	520.7	-0.2	0.0	-0.2	0.26
545.7	0.28	123.61	545.7	-0.2	0.1	-0.3	0.22
570.7	0.25	123.13	570.7	-0.3	0.2	-0.4	0.12
595.7	0.13	130.57	595.7	-0.4	0.3	-0.4	0.49
620.7	0.22	177.71	620.7	-0.4	0.3	-0.5	0.65
645.7	0.23	171.23	645.7	-0.5	0.3	-0.6	0.11
670.7	0.32	169.77	670.7	-0.6	0.3	-0.7	0.36
695.7	0.37	149.49	695.7	-0.8	0.4	-0.9	0.52
720.7	0.34	142.36	720.7	-0.9	0.5	-1.0	0.21
745.7	0.40	139.24	745.7	-1.0	0.6	-1.2	0.25
770.7	0.26	127.50	770.7	-1.1	0.7	-1.3	0.62
795.7	0.14	133.14	795.7	-1.2	0.7	-1.4	0.49
820.7	0.11	170.14	820.7	-1.2	0.8	-1.4	0.34
845.7	0.13	164.31	845.7	-1.3	0.8	-1.5	0.09
870.7	0.17	186.97	870.7	-1.4	0.8	-1.5	0.28
895.7	0.23	199.28	895.7	-1.4	0.8	-1.6	0.29
920.7	0.25	180.03	920.7	-1.5	0.7	-1.7	0.33
945.7	0.31	183.57	945.7	-1.7	0.7	-1.8	0.25
970.7	0.28	164.03	970.7	-1.8	0.8	-1.9	0.42
995.7	0.20	130.30	995.7	-1.9	0.8	-2.0	0.64
1,020.7	0.09	108.88	1,020.7	-1.9	0.9	-2.1	0.48
1,045.7	0.08	105.80	1,045.7	-1.9	0.9	-2.1	0.04
1,070.7	0.02	236.99	1,070.7	-1.9	0.9	-2.1	0.38
1,095.7	0.08	274.73	1,095.7	-1.9	0.9	-2.1	0.26
1,120.7	0.10	224.46	1,120.7	-1.9	0.8	-2.1	0.31
1,145.7	0.15	230.29	1,145.7	-2.0	0.8	-2.1	0.21
1,170.7	0.21	171.98	1,170.7	-2.0	0.8	-2.2	0.73
1,195.7	0.07	138.98	1,195.7	-2.1	0.8	-2.2	0.62
1,220.7	0.05	196.16	1,220.7	-2.1	0.8	-2.3	0.24
1,245.7	0.03	115.94	1,245.7	-2.1	0.8	-2.3	0.22
1,270.7	0.05	23.17	1,270.7	-2.1	0.8	-2.3	0.24
1,295.7	0.08	302.54	1,295.7	-2.1	0.8	-2.3	0.35
1,320.7	0.17	274.29	1,320.7	-2.1	0.8	-2.2	0.43
1,345.7	0.08	232.82	1,345.7	-2.1	0.7	-2.2	0.49
1,370.7	0.17	238.70	1,370.7	-2.1	0.7	-2.2	0.36
1,395.7	0.15	217.58	1,395.7	-2.2	0.6	-2.3	0.25
1,420.7	0.22	185.01	1,420.7	-2.3	0.6	-2.3	0.49

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EOW Completion Report



Company: Antero Resources  
 Project: Harrison County West Virginia  
 Site: Ruth/Norris/Nellie/Ford Pad  
 Well: Ford Unit 1H  
 Wellbore: Original Wellpath  
 Design: As Drilled

Local Co-ordinate Reference: Well Ford Unit 1H  
 TVD Reference: Patterson 340: GL 1374' + 24' RKB @ 1398.0usft  
 MD Reference: Patterson 340: GL 1374' + 24' RKB @ 1398.0usft  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: Oklahoma District

Survey

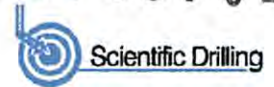
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)
1,445.7	0.09	191.34	1,445.7	-2.3	0.6	-2.4	0.52
1,470.7	0.04	73.85	1,470.7	-2.3	0.6	-2.4	0.46
1,495.7	0.09	308.90	1,495.7	-2.3	0.6	-2.4	0.47
1,520.7	0.12	265.91	1,520.7	-2.3	0.5	-2.4	0.33
1,545.7	0.16	242.12	1,545.7	-2.3	0.5	-2.4	0.28
1,570.7	0.22	243.96	1,570.7	-2.4	0.4	-2.4	0.24
1,595.7	0.36	224.99	1,595.7	-2.4	0.3	-2.4	0.67
1,620.7	0.29	207.18	1,620.7	-2.6	0.2	-2.5	0.49
1,645.7	0.26	199.80	1,645.7	-2.7	0.2	-2.6	0.19
1,670.7	0.23	184.31	1,670.7	-2.8	0.2	-2.7	0.29
1,695.7	0.15	159.18	1,695.7	-2.8	0.2	-2.8	0.45
1,720.7	0.08	241.73	1,720.7	-2.9	0.2	-2.8	0.64
1,745.7	0.17	229.94	1,745.7	-2.9	0.1	-2.8	0.37
1,770.7	0.28	252.56	1,770.7	-3.0	0.0	-2.8	0.56
1,795.7	0.31	238.81	1,795.7	-3.0	-0.1	-2.9	0.31
1,820.7	0.34	235.71	1,820.7	-3.1	-0.2	-2.9	0.14
1,845.7	0.23	213.46	1,845.7	-3.2	-0.3	-2.9	0.62
1,870.7	0.37	214.29	1,870.7	-3.3	-0.4	-3.0	0.56
1,895.7	0.44	207.89	1,895.7	-3.4	-0.5	-3.2	0.33
1,920.7	0.39	207.49	1,920.7	-3.6	-0.5	-3.3	0.20
1,945.7	0.30	191.18	1,945.7	-3.7	-0.6	-3.4	0.53
1,970.7	0.28	187.98	1,970.7	-3.9	-0.6	-3.5	0.10
1,995.7	0.15	214.33	1,995.7	-3.9	-0.6	-3.6	0.64
2,020.7	0.22	222.07	2,020.7	-4.0	-0.7	-3.6	0.30
2,045.7	0.28	209.75	2,045.7	-4.1	-0.8	-3.7	0.32
2,070.7	0.28	211.54	2,070.7	-4.2	-0.8	-3.8	0.03
2,095.7	0.36	211.59	2,095.7	-4.3	-0.9	-3.9	0.32
2,120.7	0.40	202.54	2,120.7	-4.5	-1.0	-4.0	0.29
2,145.7	0.38	190.51	2,145.7	-4.6	-1.0	-4.1	0.34
2,170.7	0.37	181.22	2,170.7	-4.8	-1.0	-4.3	0.25
2,195.7	0.46	160.67	2,195.7	-5.0	-1.0	-4.5	0.69
2,220.7	0.27	176.59	2,220.7	-5.1	-1.0	-4.6	0.85
2,245.7	0.30	148.30	2,245.7	-5.2	-0.9	-4.7	0.57
2,270.7	0.20	146.22	2,270.7	-5.3	-0.9	-4.8	0.40
2,295.7	0.25	149.93	2,295.7	-5.4	-0.8	-4.9	0.21
2,320.7	0.25	148.60	2,320.7	-5.5	-0.8	-5.0	0.02
2,345.7	0.20	150.39	2,345.7	-5.6	-0.7	-5.1	0.20
2,370.7	0.18	163.03	2,370.7	-5.7	-0.7	-5.2	0.19
2,395.7	0.21	180.73	2,395.7	-5.8	-0.7	-5.3	0.27
2,420.7	0.32	193.19	2,420.7	-5.9	-0.7	-5.4	0.49
2,445.7	0.16	188.26	2,445.7	-6.0	-0.7	-5.5	0.64
2,470.7	0.27	165.37	2,470.7	-6.1	-0.7	-5.6	0.55
2,495.7	0.40	168.64	2,495.7	-6.2	-0.7	-5.7	0.53
2,520.7	0.48	169.30	2,520.7	-6.4	-0.6	-5.9	0.32
2,545.7	0.36	149.99	2,545.7	-6.6	-0.6	-6.1	0.74

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EOW Completion Report



**Company:** Antero Resources  
**Project:** Harrison County West Virginia  
**Site:** Ruth/Norris/Nellie/Ford Pad  
**Well:** Ford Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Ford Unit 1H  
**TVD Reference:** Patterson 340: GL 1374' + 24' RKB @ 1398.0usft  
**MD Reference:** Patterson 340: GL 1374' + 24' RKB @ 1398.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Oklahoma District

Survey

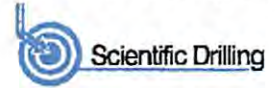
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
2,570.7	0.42	147.82	2,570.7	-6.7	-0.5	-6.3	0.25
2,595.7	0.34	142.99	2,595.7	-6.8	-0.4	-6.4	0.34
2,620.7	0.29	159.55	2,620.7	-7.0	-0.3	-6.6	0.41
2,645.7	0.36	174.90	2,645.7	-7.1	-0.3	-6.7	0.44
2,670.7	0.43	178.03	2,670.7	-7.3	-0.3	-6.9	0.29
2,695.7	0.39	159.04	2,695.7	-7.4	-0.2	-7.0	0.56
2,720.7	0.54	164.33	2,720.7	-7.6	-0.2	-7.2	0.62
2,745.7	0.56	156.19	2,745.7	-7.9	-0.1	-7.5	0.32
2,770.7	0.56	156.89	2,770.7	-8.1	0.0	-7.7	0.03
2,795.7	0.52	148.14	2,795.7	-8.3	0.1	-8.0	0.37
2,820.7	0.49	140.99	2,820.7	-8.5	0.2	-8.2	0.28
2,845.7	0.41	147.56	2,845.7	-8.6	0.3	-8.4	0.38
2,870.7	0.36	165.00	2,870.7	-8.8	0.4	-8.5	0.51
2,895.7	0.46	170.27	2,895.7	-9.0	0.5	-8.7	0.43
2,920.7	0.53	162.28	2,920.7	-9.2	0.5	-8.9	0.39
2,945.7	0.60	154.59	2,945.7	-9.4	0.6	-9.2	0.41
2,970.7	0.60	142.95	2,970.7	-9.6	0.7	-9.4	0.49
2,995.7	0.59	136.36	2,995.7	-9.8	0.9	-9.6	0.28
3,020.7	0.48	128.48	3,020.7	-10.0	1.1	-9.9	0.53
3,045.7	0.49	141.25	3,045.7	-10.1	1.2	-10.0	0.43
3,070.7	0.44	151.97	3,070.7	-10.3	1.3	-10.2	0.40
3,095.7	0.51	157.00	3,095.7	-10.5	1.4	-10.4	0.33
3,120.7	0.50	154.61	3,120.7	-10.7	1.5	-10.7	0.09
3,145.7	0.54	149.92	3,145.7	-10.9	1.6	-10.9	0.23
3,170.7	0.62	143.32	3,170.7	-11.1	1.8	-11.1	0.42
3,195.7	0.57	141.31	3,195.7	-11.3	1.9	-11.4	0.22
3,220.7	0.58	128.86	3,220.7	-11.5	2.1	-11.6	0.50
3,245.7	0.53	125.29	3,245.7	-11.6	2.3	-11.8	0.24
3,270.7	0.44	127.92	3,270.7	-11.7	2.5	-11.9	0.37
3,295.7	0.40	145.86	3,295.7	-11.9	2.6	-12.1	0.55
3,320.7	0.36	151.78	3,320.7	-12.0	2.7	-12.3	0.22
3,345.7	0.43	140.29	3,345.7	-12.2	2.8	-12.4	0.42
3,370.7	0.43	149.75	3,370.7	-12.3	2.9	-12.6	0.28
3,395.7	0.56	137.75	3,395.7	-12.5	3.0	-12.8	0.66
3,420.7	0.53	135.62	3,420.7	-12.7	3.2	-13.0	0.14
3,445.7	0.39	121.67	3,445.7	-12.8	3.3	-13.2	0.71
3,470.7	0.35	140.36	3,470.7	-12.9	3.4	-13.3	0.51
3,495.7	0.40	138.86	3,495.7	-13.0	3.5	-13.5	0.20
3,520.7	0.40	142.28	3,520.7	-13.1	3.7	-13.6	0.10
3,545.7	0.42	159.90	3,545.7	-13.3	3.7	-13.8	0.51
3,570.7	0.45	147.58	3,570.7	-13.5	3.8	-14.0	0.39
3,595.7	0.44	148.70	3,595.7	-13.6	3.9	-14.2	0.05
3,620.7	0.39	144.32	3,620.7	-13.8	4.0	-14.4	0.24
3,645.7	0.38	140.62	3,645.7	-13.9	4.1	-14.5	0.11

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EOW Completion Report



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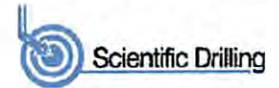
**Local Co-ordinate Reference:** Well Ford Unit 1H  
**TVD Reference:** Patterson 340: GL 1374' + 24' RKB @ 1398.0usft  
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**Database:** Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
3,670.7	0.37	142.29	3,670.7	-14.0	4.2	-14.7	0.06
3,695.7	0.41	137.50	3,695.7	-14.2	4.3	-14.8	0.21
3,720.7	0.40	137.63	3,720.7	-14.3	4.5	-15.0	0.04
3,745.7	0.37	126.86	3,745.6	-14.4	4.6	-15.1	0.31
3,770.7	0.42	119.46	3,770.6	-14.5	4.7	-15.3	0.29
3,795.7	0.41	113.92	3,795.6	-14.6	4.9	-15.4	0.17
3,820.7	0.42	119.98	3,820.6	-14.7	5.0	-15.5	0.18
3,845.7	0.49	117.19	3,845.6	-14.8	5.2	-15.7	0.29
3,870.7	0.34	125.15	3,870.6	-14.9	5.4	-15.8	0.64
3,895.7	0.35	123.95	3,895.6	-14.9	5.5	-15.9	0.05
3,920.7	0.28	143.81	3,920.6	-15.0	5.6	-16.0	0.51
3,945.7	0.31	141.93	3,945.6	-15.1	5.7	-16.1	0.13
3,970.7	0.42	138.73	3,970.6	-15.3	5.8	-16.3	0.45
3,995.7	0.37	150.40	3,995.6	-15.4	5.9	-16.5	0.38
4,020.7	0.62	140.54	4,020.6	-15.6	6.0	-16.7	1.05
4,045.7	0.63	133.34	4,045.6	-15.8	6.2	-16.9	0.32
4,070.7	0.63	126.86	4,070.6	-16.0	6.4	-17.1	0.28
4,095.7	0.55	113.33	4,095.6	-16.1	6.6	-17.3	0.64
4,120.7	0.50	124.14	4,120.6	-16.2	6.8	-17.5	0.44
4,145.7	0.41	127.54	4,145.6	-16.3	7.0	-17.6	0.38
4,170.7	0.51	120.95	4,170.6	-16.4	7.2	-17.8	0.45
4,195.7	0.57	131.25	4,195.6	-16.6	7.3	-18.0	0.46
4,220.7	0.65	125.52	4,220.6	-16.7	7.5	-18.2	0.40
4,245.7	0.72	120.45	4,245.6	-16.9	7.8	-18.4	0.37
4,270.7	0.70	118.39	4,270.6	-17.0	8.1	-18.7	0.13
4,295.7	0.63	115.05	4,295.6	-17.2	8.3	-18.9	0.32
4,320.7	0.58	117.42	4,320.6	-17.3	8.6	-19.0	0.22
4,345.7	0.60	124.26	4,345.6	-17.4	8.8	-19.2	0.29
4,370.7	0.70	123.86	4,370.6	-17.6	9.0	-19.4	0.40
4,395.7	0.70	113.55	4,395.6	-17.7	9.3	-19.7	0.50
4,420.7	0.60	110.90	4,420.6	-17.8	9.5	-19.8	0.42
4,445.7	0.45	126.66	4,445.6	-17.9	9.7	-20.0	0.83
4,470.7	0.39	132.21	4,470.6	-18.1	9.9	-20.2	0.29
4,495.7	0.82	125.57	4,495.6	-18.2	10.1	-20.4	1.74
4,520.7	0.88	124.71	4,520.6	-18.4	10.4	-20.7	0.25
4,545.7	0.66	114.62	4,545.6	-18.6	10.7	-20.9	1.03
4,570.7	0.74	108.63	4,570.6	-18.7	11.0	-21.1	0.43
4,595.7	0.89	105.84	4,595.6	-18.8	11.3	-21.3	0.62
4,620.7	1.16	75.61	4,620.6	-18.8	11.7	-21.4	2.38
4,645.7	1.93	57.11	4,645.6	-18.5	12.3	-21.3	3.63
4,670.7	3.16	47.10	4,670.6	-17.8	13.2	-20.9	5.21
4,695.7	4.50	42.35	4,695.5	-16.6	14.4	-20.1	5.50
4,720.7	5.80	39.73	4,720.4	-14.9	15.8	-18.9	5.28
4,745.7	6.87	38.32	4,745.3	-12.8	17.6	-17.4	4.32

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**Company:** Antero Resources  
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**Well:** Ford Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

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**MD Reference:** Patterson 340: GL 1374' + 24' RKB @ 1398.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Oklahoma District

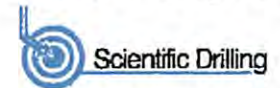
**Survey**

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
4,770.7	7.69	37.27	4,770.1	-10.3	19.5	-15.5	3.32
4,795.7	8.13	36.76	4,794.8	-7.5	21.6	-13.5	1.78
4,820.7	8.57	37.04	4,819.6	-4.6	23.8	-11.4	1.77
4,845.7	9.21	37.18	4,844.3	-1.5	26.1	-9.1	2.56
4,870.7	9.64	37.48	4,868.9	1.7	28.6	-6.7	1.73
4,895.7	9.98	38.73	4,893.6	5.1	31.2	-4.3	1.60
4,920.7	10.36	44.25	4,918.2	8.4	34.1	-2.0	4.18
4,945.7	11.11	45.22	4,942.7	11.7	37.4	0.2	3.09
4,970.7	11.96	46.86	4,967.2	15.1	41.0	2.4	3.64
4,995.7	12.54	48.08	4,991.6	18.7	44.9	4.7	2.54
5,020.7	13.20	50.16	5,016.0	22.4	49.1	7.0	3.23
5,045.7	13.61	51.09	5,040.3	26.0	53.6	9.2	1.85
5,070.7	14.15	51.22	5,064.6	29.8	58.3	11.4	2.16
5,095.7	14.90	51.53	5,088.8	33.7	63.2	13.7	3.02
5,120.7	15.45	51.49	5,112.9	37.8	68.3	16.1	2.20
5,145.7	16.44	51.46	5,137.0	42.1	73.7	18.6	3.96
5,170.7	17.29	51.45	5,160.9	46.6	79.3	21.3	3.40
5,195.7	17.82	51.29	5,184.7	51.3	85.2	24.0	1.33
5,220.7	18.17	51.07	5,208.5	56.1	91.2	26.9	2.22
5,245.7	18.72	50.42	5,232.3	61.1	97.3	29.9	2.35
5,270.7	19.39	49.83	5,255.9	66.3	103.6	33.0	2.79
5,295.7	20.37	49.20	5,279.4	71.8	110.0	36.4	4.01
5,320.7	21.31	48.58	5,302.8	77.7	116.7	40.0	3.86
5,345.7	22.13	47.99	5,326.0	83.8	123.6	43.9	3.39
5,370.7	22.78	47.28	5,349.1	90.3	130.7	48.0	2.82
5,395.7	22.98	47.15	5,372.1	96.9	137.8	52.2	0.83
5,420.7	23.34	46.79	5,395.1	103.6	145.0	56.5	1.55
5,445.7	23.50	46.86	5,418.0	110.4	152.3	60.9	0.65
5,470.7	24.08	47.82	5,440.9	117.2	159.7	65.3	2.79
5,495.7	24.09	49.99	5,463.7	123.9	167.4	69.4	3.54
5,520.7	23.64	50.35	5,486.6	130.4	175.1	73.3	1.89
5,545.7	23.35	50.43	5,509.5	136.8	182.8	77.1	1.17
5,570.7	23.55	51.25	5,532.5	143.0	190.5	80.9	1.53
5,595.7	23.80	52.25	5,555.4	149.3	198.4	84.5	1.89
5,620.7	23.63	52.20	5,578.3	155.4	206.4	88.1	0.68
5,645.7	23.16	51.49	5,601.2	161.6	214.2	91.7	2.19
5,670.7	22.21	50.47	5,624.3	167.6	221.7	95.3	4.11
5,695.7	21.42	49.77	5,647.5	173.6	228.8	98.9	3.33
5,720.7	21.16	49.25	5,670.8	179.5	235.7	102.5	1.29
5,745.7	21.37	49.25	5,694.1	185.4	242.6	106.1	0.84
5,770.7	21.76	49.31	5,717.3	191.4	249.5	109.8	1.56
5,795.7	22.46	49.57	5,740.5	197.5	256.7	113.6	2.83
5,820.7	23.28	49.85	5,763.5	203.8	264.1	117.4	3.31
5,845.7	24.36	50.01	5,786.4	210.3	271.8	121.3	4.33

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EOW Completion Report



**Company:** Antero Resources  
**Project:** Harrison County West Virginia  
**Site:** Ruth/Norris/Nellie/Ford Pad  
**Well:** Ford Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Ford Unit 1H  
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**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
5,870.7	24.91	49.98	5,809.1	217.0	279.8	125.4	2.20
5,895.7	24.79	50.12	5,831.8	223.7	287.9	129.5	0.53
5,920.7	24.93	51.40	5,854.5	230.4	296.0	133.5	2.22
5,945.7	25.18	52.32	5,877.1	236.9	304.3	137.3	1.85
5,970.7	25.07	53.07	5,899.8	243.3	312.8	140.9	1.35
5,995.7	24.87	55.51	5,922.4	249.5	321.3	144.3	4.20
6,020.7	24.70	56.11	5,945.1	255.4	330.0	147.4	1.21
6,045.7	24.61	54.47	5,967.8	261.3	338.6	150.6	2.76
6,070.7	25.07	52.86	5,990.5	267.6	347.0	154.0	3.27
6,095.7	25.37	51.52	6,013.1	274.1	355.4	157.8	2.58
6,120.7	25.44	49.35	6,035.7	280.9	363.7	161.9	3.73
6,145.7	25.10	46.27	6,058.3	288.1	371.6	166.5	5.43
6,170.7	24.85	43.61	6,081.0	295.6	379.1	171.4	4.60
6,195.7	25.51	42.21	6,103.6	303.3	386.3	176.7	3.56
6,220.7	26.04	41.80	6,126.1	311.4	393.6	182.3	2.24
6,245.7	26.13	42.20	6,148.6	319.6	400.9	188.0	0.79
6,270.7	26.23	42.57	6,171.0	327.7	408.4	193.6	0.77
6,295.7	25.91	43.52	6,193.5	335.8	415.9	199.1	2.10
6,320.7	25.83	44.52	6,216.0	343.6	423.5	204.3	1.77
6,345.7	25.58	45.91	6,238.5	351.2	431.2	209.4	2.61
6,370.7	25.27	47.91	6,261.1	358.6	439.0	214.1	3.65
6,395.7	24.60	49.40	6,283.8	365.5	446.9	218.4	3.67
6,420.7	23.70	51.25	6,306.6	372.1	454.8	222.4	4.70
6,445.7	23.14	53.02	6,329.5	378.2	462.6	225.9	3.60
6,470.7	22.77	54.18	6,352.5	384.0	470.5	229.1	2.34
6,495.7	22.42	54.01	6,375.6	389.6	478.2	232.2	1.42
6,520.7	22.17	53.29	6,398.7	395.2	485.9	235.4	1.48
6,545.7	22.25	51.88	6,421.9	401.0	493.4	238.7	2.16
6,570.7	22.72	50.79	6,445.0	406.9	500.8	242.2	2.51
6,595.7	23.04	50.82	6,468.0	413.1	508.4	245.9	1.28
6,620.7	22.99	52.39	6,491.0	419.1	516.0	249.4	2.46
6,645.7	23.01	53.96	6,514.0	425.0	523.9	252.7	2.46
6,670.7	23.23	55.46	6,537.0	430.7	531.9	255.8	2.51
6,695.7	23.59	56.81	6,560.0	436.2	540.1	258.7	2.58
6,720.7	24.15	58.52	6,582.8	441.6	548.7	261.3	3.56
6,745.7	24.67	59.19	6,605.6	447.0	557.5	263.8	2.36
6,770.7	25.37	59.46	6,628.3	452.3	566.6	266.3	2.84
6,795.7	26.13	59.08	6,650.8	457.9	575.9	268.9	3.11
6,820.7	27.19	58.39	6,673.1	463.7	585.5	271.7	4.42
6,845.7	27.23	58.01	6,695.3	469.7	595.2	274.6	0.71
6,870.7	27.32	56.55	6,717.6	475.9	604.9	277.7	2.70
6,895.7	26.98	54.92	6,739.8	482.4	614.3	281.0	3.27
6,920.7	26.80	52.73	6,762.1	489.0	623.4	284.7	4.03
6,945.7	27.21	50.19	6,784.4	496.1	632.3	288.9	4.90

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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
6,970.7	25.89	47.82	6,806.7	503.4	640.7	293.4	6.77
6,995.7	26.38	45.67	6,829.2	511.0	648.8	298.3	4.26
7,020.7	25.44	42.84	6,851.7	518.8	656.4	303.5	6.21
7,045.7	25.30	40.41	6,874.3	526.8	663.5	309.1	4.20
7,070.7	25.04	40.45	6,896.9	534.9	670.4	314.8	1.04
7,075.0	25.09	40.78	6,900.8	536.3	671.6	315.8	3.50
<b>SCMR</b>							
7,095.7	25.34	42.38	6,919.5	542.9	677.4	320.4	3.50
7,120.7	24.13	44.63	6,942.2	550.5	684.6	325.5	6.13
7,145.7	23.26	45.59	6,965.1	557.6	691.7	330.2	3.81
7,170.7	22.77	47.18	6,988.1	564.3	698.8	334.6	3.17
7,174.9	22.69	47.48	6,992.0	565.4	700.0	335.3	3.32
7,226.0	22.69	50.95	7,039.1	578.3	714.9	343.2	2.62
7,256.0	22.45	50.85	7,066.8	585.5	723.9	347.5	0.81
7,286.0	22.93	47.25	7,094.5	593.1	732.6	352.2	4.90
7,316.0	23.99	42.87	7,122.0	601.5	741.0	357.8	6.80
7,346.0	25.73	39.29	7,149.3	611.1	749.3	364.5	7.67
7,376.0	27.62	37.32	7,176.1	621.6	757.7	372.2	6.95
7,406.0	29.84	34.84	7,202.4	633.3	766.1	380.8	8.40
7,436.0	32.12	28.89	7,228.1	646.4	774.3	391.0	12.72
7,466.0	34.21	21.52	7,253.2	661.2	781.2	403.1	15.13
7,487.0	36.56	16.84	7,270.3	672.7	785.2	412.9	17.07
<b>BRKT</b>							
7,496.0	37.62	15.00	7,277.5	677.9	786.7	417.5	17.07
7,522.0	40.87	10.74	7,297.7	694.0	790.3	431.7	16.22
<b>TLLY</b>							
7,526.0	41.38	10.14	7,300.7	696.6	790.8	434.1	16.22
7,556.0	44.19	7.14	7,322.7	716.7	793.8	452.4	11.57
7,586.0	46.34	4.39	7,343.8	737.9	796.0	472.1	9.68
7,616.0	49.93	1.90	7,363.8	760.2	797.2	493.0	13.47
7,646.0	54.84	0.39	7,382.1	783.9	797.6	515.6	16.84
7,647.0	54.95	0.36	7,382.7	784.8	797.7	516.4	11.79
<b>HMLN</b>							
7,676.0	58.29	359.45	7,398.7	809.0	797.6	539.6	11.79
7,706.0	61.82	358.54	7,413.6	835.0	797.1	564.5	12.06
7,736.0	65.40	358.25	7,427.0	861.8	796.4	590.4	11.96
7,766.0	69.34	358.22	7,438.5	889.5	795.5	617.1	13.13
7,796.0	73.62	358.43	7,448.0	917.9	794.7	644.6	14.28
7,826.0	75.84	358.62	7,455.9	946.9	794.0	672.4	7.43
<b>MRCL</b>							
7,856.0	76.80	359.29	7,463.0	976.0	798.4	700.5	3.87
7,886.0	78.30	0.15	7,469.5	1,005.3	793.3	728.5	5.73
7,916.0	80.11	358.26	7,475.1	1,034.8	792.9	756.8	8.64
7,946.0	80.93	354.92	7,480.1	1,064.3	791.1	785.5	11.32
7,976.0	81.37	352.05	7,484.7	1,093.7	787.8	814.7	9.57

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8,012.0	83.80	348.64	7,489.3	1,128.9	781.8	850.1	11.57
8,070.0	90.20	344.08	7,492.4	1,185.2	768.1	907.9	13.54
8,166.0	90.34	341.52	7,491.9	1,276.9	739.7	1,003.8	2.67
8,260.0	89.93	341.49	7,491.7	1,366.0	709.9	1,097.8	0.44
8,354.0	89.16	342.20	7,492.4	1,455.3	680.6	1,191.8	1.11
8,447.0	88.83	342.68	7,494.1	1,544.0	652.6	1,284.8	0.63
8,542.0	88.42	342.27	7,496.3	1,634.5	624.0	1,379.7	0.61
8,636.0	89.06	343.49	7,498.4	1,724.3	596.3	1,473.7	1.47
8,730.0	88.39	345.30	7,500.5	1,814.9	571.0	1,567.7	2.05
8,824.0	87.92	342.71	7,503.5	1,905.2	545.1	1,661.6	2.80
8,919.0	88.63	342.48	7,506.4	1,995.8	516.7	1,756.5	0.79
9,013.0	89.19	340.06	7,508.2	2,084.8	486.6	1,850.5	2.64
9,106.0	88.81	341.61	7,509.8	2,172.6	456.0	1,943.4	1.72
9,200.0	89.03	342.76	7,511.6	2,262.1	427.3	2,037.4	1.25
9,294.0	92.11	343.12	7,510.6	2,351.9	399.7	2,131.4	3.30
9,388.0	93.49	343.61	7,506.0	2,441.9	372.8	2,225.2	1.56
9,482.0	92.85	344.44	7,500.8	2,532.1	347.0	2,319.1	1.11
9,576.0	92.21	344.90	7,496.7	2,622.7	322.2	2,412.9	0.84
9,670.0	88.99	341.91	7,495.7	2,712.7	295.3	2,506.9	4.67
9,763.0	89.60	340.57	7,496.9	2,800.8	265.4	2,599.9	1.58
9,858.0	90.37	341.72	7,496.9	2,890.7	234.7	2,694.8	1.46
9,951.0	89.30	344.07	7,497.1	2,979.6	207.4	2,787.8	2.78
10,045.0	89.60	345.55	7,498.1	3,070.3	182.8	2,881.7	1.61
10,137.0	88.09	345.51	7,499.9	3,159.3	159.8	2,973.6	1.64
10,230.0	88.02	342.59	7,503.1	3,248.7	134.2	3,066.5	3.14
10,325.0	88.89	341.44	7,505.6	3,339.0	104.9	3,161.5	1.52
10,419.0	89.93	342.05	7,506.6	3,428.3	75.5	3,255.5	1.28
10,513.0	87.71	344.17	7,508.5	3,518.2	48.2	3,349.4	3.27
10,607.0	89.46	343.16	7,510.8	3,608.4	21.7	3,443.4	2.15
10,701.0	91.01	343.61	7,510.5	3,698.4	-5.1	3,537.4	1.72
10,795.0	89.46	342.56	7,510.1	3,788.4	-32.5	3,631.4	1.99
10,889.0	90.27	343.86	7,510.3	3,878.4	-59.6	3,725.4	1.63
10,982.0	89.73	343.36	7,510.3	3,967.6	-85.9	3,818.4	0.79
11,076.0	89.83	340.39	7,510.7	4,056.9	-115.1	3,912.3	3.16
11,171.0	90.23	340.22	7,510.6	4,146.3	-147.1	4,007.2	0.46
11,265.0	89.70	339.90	7,510.7	4,234.7	-179.2	4,101.1	0.66
11,358.0	89.50	342.15	7,511.3	4,322.6	-209.4	4,194.1	2.43
11,452.0	89.93	339.41	7,511.8	4,411.4	-240.4	4,288.0	2.95
11,546.0	89.29	343.65	7,512.4	4,500.5	-270.1	4,381.9	4.56
11,640.0	89.50	342.40	7,513.4	4,590.4	-297.6	4,475.9	1.35
11,734.0	89.46	345.48	7,514.3	4,680.7	-323.6	4,569.9	3.28
11,828.0	90.00	345.69	7,514.7	4,771.8	-347.0	4,663.8	0.62
11,922.0	89.93	344.70	7,514.8	4,862.7	-371.0	4,757.7	1.06
12,016.0	90.40	342.32	7,514.5	4,952.8	-397.7	4,851.7	2.58

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EOW Completion Report

4703305702F  
 Scientific Drilling

**Company:** Antero Resources  
**Project:** Harrison County West Virginia  
**Site:** Ruth/Norris/Nellie/Ford Pad  
**Well:** Ford Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Ford Unit 1H  
**TVD Reference:** Patterson 340: GL 1374' + 24' RKB @ 1398.0usft  
**MD Reference:** Patterson 340: GL 1374' + 24' RKB @ 1398.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
12,109.0	90.92	341.52	7,513.4	5,041.2	-426.5	4,944.7	1.03
12,200.0	90.47	343.44	7,512.3	5,128.0	-453.9	5,035.7	2.17
12,290.0	89.83	345.32	7,512.1	5,214.6	-478.2	5,125.6	2.21
12,381.0	90.40	346.96	7,511.9	5,303.0	-500.0	5,216.5	1.91
12,472.0	88.79	343.99	7,512.6	5,391.0	-522.8	5,307.4	3.71
12,563.0	90.91	342.28	7,512.8	5,478.1	-549.2	5,398.4	2.99
12,654.0	89.80	340.90	7,512.2	5,564.5	-577.9	5,489.4	1.95
12,745.0	90.50	344.12	7,512.0	5,651.2	-605.3	5,580.3	3.62
12,835.0	90.00	344.12	7,511.6	5,737.8	-629.9	5,670.3	0.56
12,926.0	89.63	346.52	7,511.9	5,825.8	-653.0	5,761.2	2.67
13,017.0	89.03	343.26	7,513.0	5,913.7	-676.7	5,852.2	3.64
13,108.0	89.33	341.56	7,514.3	6,000.4	-704.2	5,943.1	1.90
13,199.0	90.00	342.81	7,514.8	6,087.0	-732.0	6,034.1	1.56
13,293.0	88.69	342.43	7,515.9	6,176.7	-760.1	6,128.1	1.45
13,387.0	88.46	340.69	7,518.2	6,265.9	-789.8	6,222.1	1.87
13,481.0	88.76	340.78	7,520.5	6,354.6	-820.8	6,316.0	0.33
13,575.0	90.23	336.87	7,521.3	6,442.2	-854.8	6,409.7	4.44
13,670.0	90.24	340.67	7,520.9	6,530.8	-889.2	6,504.4	4.00
13,764.0	89.73	339.80	7,520.9	6,619.2	-920.9	6,598.3	1.07
13,858.0	90.07	345.14	7,521.1	6,708.8	-949.2	6,692.3	5.69
13,952.0	90.10	344.33	7,521.0	6,799.5	-974.0	6,786.2	0.86
14,046.0	90.40	346.13	7,520.6	6,890.4	-998.0	6,880.2	1.94
14,140.0	87.95	344.42	7,521.9	6,981.3	-1,021.8	6,974.1	3.18
14,234.0	87.82	343.99	7,525.4	7,071.7	-1,047.4	7,068.0	0.48
14,328.0	89.36	343.16	7,527.7	7,161.8	-1,074.0	7,161.9	1.86
14,422.0	89.46	343.93	7,528.7	7,251.9	-1,100.6	7,255.9	0.83
14,516.0	88.05	343.46	7,530.7	7,342.1	-1,127.0	7,349.9	1.58
14,610.0	88.52	343.86	7,533.5	7,432.3	-1,153.4	7,443.8	0.66
14,704.0	88.76	344.76	7,535.7	7,522.8	-1,178.8	7,537.8	0.99
14,798.0	89.66	344.44	7,537.0	7,613.4	-1,203.8	7,631.7	1.02
14,892.0	88.36	344.42	7,538.7	7,703.9	-1,229.0	7,725.7	1.38
14,986.0	89.56	344.86	7,540.4	7,794.6	-1,253.9	7,819.6	1.36
15,080.0	87.85	342.79	7,542.5	7,884.8	-1,280.1	7,913.6	2.86
15,174.0	90.74	342.14	7,543.7	7,974.4	-1,308.4	8,007.6	3.15
15,268.0	91.94	342.33	7,541.5	8,063.9	-1,337.1	8,101.5	1.29
15,362.0	90.10	342.63	7,539.8	8,153.5	-1,365.4	8,195.5	1.98
15,456.0	89.53	340.65	7,540.1	8,242.7	-1,395.0	8,289.5	2.19
15,550.0	90.64	340.22	7,539.9	8,331.3	-1,426.5	8,383.4	1.27
15,644.0	91.11	342.71	7,538.5	8,420.4	-1,456.3	8,477.3	2.70
15,738.0	89.53	345.32	7,538.0	8,510.8	-1,482.2	8,571.5	3.25
15,832.0	88.93	344.17	7,539.3	8,601.4	-1,506.9	8,665.3	1.38
15,926.0	89.63	343.23	7,540.4	8,691.7	-1,533.3	8,759.2	1.25
16,020.0	89.73	342.27	7,541.0	8,781.4	-1,561.2	8,853.2	1.03
16,114.0	88.96	342.21	7,542.0	8,870.9	-1,589.9	8,947.2	0.82
16,208.0	89.87	344.75	7,543.0	8,961.0	-1,616.6	9,041.2	2.87

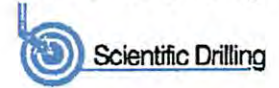
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EOW Completion Report



**Company:** Antero Resources  
**Project:** Harrison County West Virginia  
**Site:** Ruth/Norms/Nellie/Ford Pad  
**Well:** Ford Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Ford Unit 1H  
**TVD Reference:** Patterson 340: GL 1374' + 24' RKB @ 1398.0usft  
**MD Reference:** Patterson 340: GL 1374' + 24' RKB @ 1398.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Oklahoma District

**Survey**

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
16,302.0	88.59	344.19	7,544.3	9,051.6	-1,641.8	9,135.2	1.49
16,397.0	88.08	341.63	7,547.0	9,142.4	-1,669.7	9,230.1	2.75
16,492.0	88.86	341.73	7,549.6	9,232.5	-1,699.5	9,325.1	0.83
16,586.0	89.33	342.72	7,551.0	9,322.0	-1,728.2	9,419.0	1.17
16,680.0	90.07	343.52	7,551.5	9,412.0	-1,755.5	9,513.0	1.16
16,774.0	91.17	343.72	7,550.5	9,502.1	-1,782.0	9,607.0	1.19
16,868.0	91.01	343.03	7,548.7	9,592.2	-1,808.9	9,701.0	0.75
16,909.0	91.58	343.10	7,547.8	9,631.4	-1,820.8	9,742.0	1.40
16,966.0	91.50	342.90	7,546.3	9,685.9	-1,837.5	9,799.0	0.38

**Design Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,075.0	6,900.8	536.3	671.6	SCMR
7,487.0	7,270.3	672.7	785.2	BRKT
7,522.0	7,297.7	694.0	790.3	TLLY
7,647.0	7,382.7	784.8	797.7	HMLN
7,826.0	7,455.9	946.9	794.0	MRCL

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

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State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Discharge Monitoring Report  
Oil and Gas General Permit

Company Name: Antero Resources Corporation  
API No: 047-033-05702 County: Harrison  
District: Tenmile Well No: Ford Unit 1H  
Farm Name: Hubert Jr. & Lorena Bland  
Discharge Date/s From:(MMDDYY) - \_\_\_\_\_ To: (MMDDYY) - \_\_\_\_\_  
Discharge Times. From: - \_\_\_\_\_ To: - \_\_\_\_\_  
Total Volume to be Disposed from this facility (gallons): N/A - Not Completed  
Disposal Option(s) Utilized (write volumes in gallons):

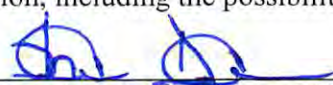
- (1) Land Application: - \_\_\_\_\_ (Include a topographical map of the Area.)
- (2) UIC: - \_\_\_\_\_ Permit No. - \_\_\_\_\_
- (3) Offsite Disposal: - \_\_\_\_\_ Site Location: - \_\_\_\_\_
- (4) Reuse: - \_\_\_\_\_ Alternate Permit Number: - \_\_\_\_\_
- (5) Centralized Facility: - \_\_\_\_\_ Permit No. - \_\_\_\_\_
- (6) Other method: - \_\_\_\_\_ (Include an explanation)

Follow Instructions below to determine your treatment category:

- Optional Pretreatment test: n/a Cl- mg/l n/a DO mg/l
1. Do you have permission to use expedited treatment from the Director or his representative?  
(Y/N) N If yes, who? \_\_\_\_\_ and place a four (4) on line 7.  
If not go to line 2
  2. Was Frac Fluid or flowback put into the pit? (Y/N) Y If yes, go to line 5. If not, go to line 3.
  3. Do you have a chloride value pretreatment (see above)? (Y/N) N If yes, go to line 4  
If not, go to line 5.
  4. Is the Chloride level less than 5000 mg/l? (Y/N) n/a If yes, then enter a one (1) on line 7.
  5. Do you have a pretreatment value for DO? (See above) (Y/N) N If yes, go to line 6  
If not, enter a three (3) in line 7.
  6. Is the DO level greater than 2.5 mg/l?(Y/N) n/a If yes, enter a two (2) on line 7. If not, enter a three (3) on line 7.
  7. 3 is the category of your pit. Use the Appropriate section.
  8. Comments on Pit condition: Pit Condition is Good

Name of Principal Exec. Officer: Shawn Donovan  
Title of Officer: Environmental Specialist III  
Date Completed: 11/14/16

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

  
\_\_\_\_\_  
Signature of a Principal Exec. Officer or Authorized agent.

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West Virginia Department of Environmental Protection

03/10/2017

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Category 1  
Sampling Results  
API No : \_\_\_\_\_

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	5	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl	5,000	_____	5,000	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
Total Al***		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Disposal Area		_____	Monitor	_____	Acres

\*\*\* Al is only reported if the pH is above 9.0

Category 2  
Sampling Results  
API No : \_\_\_\_\_

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	10	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
Total Al***		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Disposal Area		_____	Monitor	_____	Acres

\* Can be 25,000 with inspector's approval,

(Inspector's signature): \_\_\_\_\_

\*\* Include a description of your aeration technique.

\*\*\* Al is only reported if the pH is above 9.0

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Aeration Code: \_\_\_\_\_  
Department of  
Environmental Protection

03/10/2017

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Category 3  
Sampling Results  
API No : \_\_\_\_\_

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	20	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
Total Al***		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Disposal Area		_____	Monitor	_____	Acres

\* Can be 25,000 with inspector's approval,

(Inspector's signature): \_\_\_\_\_

Date: \_\_\_\_\_

\*\* Include a description of your aeration technique.

Aeration Code: \_\_\_\_\_

\*\*\* Al is only reported if the pH is above 9.0.

Category 4  
Sampling Results  
API No: \_\_\_\_\_

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	1	_____	N/A	N/A	Days
Fe	Monitor	_____	Monitor	_____	mg/l
D.O.	Monitor	_____	Monitor	_____	mg/l
Settleable Sol.	Monitor	_____	Monitor	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Activated Carbon (0.175)		_____	N/A	N/A	lb/Bt
Date Site Reclaimed	N/A	N/A			10 days from dis.
Disposal Area		_____	Monitor	_____	Acres

\* Can be 25,000 with inspector's approval,

(Inspector's signature): \_\_\_\_\_

Date: \_\_\_\_\_

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WV Department of  
Environmental Protection



WW-9  
(4/16)

47-033-05702 F

API Number 47 - 033 - 05702

Operator's Well No. Ford Unit 1H

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Antero Resources Corporation OP Code 494507062

Watershed (HUC 10) Tennile Creek Quadrangle Salem & Big Isaac

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes  No

Will a pit be used? Yes  No  \*Please note the As-Built des'gn shows an affected area from an associated frac pit; however, Antero received a Certificate of Approval to convert it to the Hubert Centralized Waste Water Pit (033-WPC-0031) on 7/15/16.

If so, please describe anticipated pit waste: No pit will be used at this site (Drilling and Flowback Fluids will be stored in tanks. Cuttings will be torched and hauled off site.)

Will a synthetic liner be used in the pit? Yes  No  If so, what ml.? N/A

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number \*UIC Permit # will be provided on Form WR-34 )
- Reuse (at API Number Future permitted well locations when applicable. API# will be provided on Form WR-34 )
- Off Site Disposal (Supply form WW-9 for disposal location) (Meadowfill Landfill Permit #SWF-1032-98)
- Other (Explain Northwestern Landfill Permit #SWF-1025/WV0109410)

SAW  
12/7/2016

Will closed loop system be used? If so, describe: Yes

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Surface - Air/Freshwater, Intermediate - Dust/Sluff Foam, Production - Water Based Mud

-If oil based, what type? Synthetic, petroleum, etc. N/A

Additives to be used in drilling medium? Please See Attachment

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Stored in tanks, removed offsite and taken to landfill.

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) N/A

-Landfill or offsite name/permit number? Meadowfill Landfill (Permit #SWF-1032-98), Northwestern Landfill (Permit # SWF-1025/WV0109410)

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

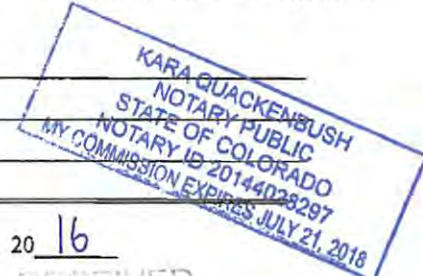
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature [Signature]

Company Official (Typed Name) Cole Kilstrom

Company Official Title Environmental & Regulatory Manager



Subscribed and sworn before me this 18 day of November, 20 16

[Signature]

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Notary Public  
Office of Oil and Gas

My commission expires July 21, 2018

DEC 19 2016

Form WW-9

Operator's Well No. Ford Unit 1H

**Antero Resources Corporation**

Proposed Revegetation Treatment: Acres Disturbed 20.73 Existing Acres Prevegetation pH \_\_\_\_\_

Lime 2-4 Tons/acre or to correct to pH 6.5

Fertilizer type Hay or straw or Wood Fiber (will be used where needed)

Fertilizer amount 500 lbs/acre

Mulch 2-3 Tons/acre

Existing Drill Pad (3.22) + Existing Spoil Piles (6.68) + Existing Access Road (5.6) + Existing Frac Pit Access Road (1.71) + Existing Frac Pit (3.52) = 20.73 Existing Acres

**Seed Mixtures**

<b>Temporary</b>		<b>Permanent</b>	
Seed Type	lbs/acre	Seed Type	lbs/acre
Tall Fescue	45	Tall Fescue	45
Perennial Rye Grass	20	Perennial Rye Grass	20
*or type of grass seed requested by surface owner		*or type of grass seed requested by surface owner	

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: SP DeWanett

Comments: Upgrade ETS iF/as necessary per WUDEP ETS manual.

Title: COG Inspector Date: 12/7/2016

Field Reviewed?  Yes  No

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**911 Address**  
**3528 Raccoon Run Rd.**  
**Salem, WV 26426**

# Well Site Safety Plan

## Antero Resources

**Well Name:** April Unit 1H, April Unit 2H, Ford Unit 1H, Ford Unit 2H, Lee Unit 1H, Lee Unit 2H, Nellie Unit 1H, Nellie Unit 2H, Norris Unit 1H, Norris Unit 2H

*SDW*  
*12/7/2016*

**Pad Location:** HUBERT PAD  
Harrison County/Tenmile District

### GPS Coordinates:

**Entrance** - Lat 39°15'10.37"/Long -80°33'09.28" (NAD83)

**Pad Center** - Lat 39°15'12.65"/Long -80°33'36.70" (NAD83)

### Driving Directions:

From the intersection of I-50 and I-79, go 14.7 miles towards the town of Salem. Once near the town of Salem head south on County Rd 50/73 for 1.2 miles. Continue onto South St for 0.2 miles. Continue onto Patterson Rd for 0.2 miles. Continue onto Co Route 29/Patterson Fork Rd for 0.2 miles. Continue onto Salem Country Club Rd for 0.4 miles. Salem Country Club Rd turns slightly right and becomes Co Route 29/Patterson Fork Rd for 0.9 miles. Turn left onto Co Route 29/2 for 1 mile. Take a sharp right onto Raccoon Run Rd for 0.2 miles. Lease road will be on your right.

From the Volunteer Fire Department in Salem: Head east on W Main St toward Water Street for 0.3 miles. Turn right onto South St for 0.5 miles. Continue onto Patterson Fork Rd for 0.2 miles. Continue onto Salem Country Club Rd for 0.4 miles. Salem Country Club becomes Patterson Fork Rd, continue for 0.9 miles. Turn left onto Co Rte 29/2 for 1.0 mile. Turn right onto Raccoon Run Rd for 0.2 miles. The access road will be on the right.

**EMERGENCY (24 HOUR) CONTACT 1-800-878-1373**

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WV Department of Environmental Protection 03/10/2017  
SSP Page 1



***Form WW-9 Additives Attachment*****SURFACE INTERVAL**

1. Fresh Water
2. Soap –Foamer AC
3. Air

**INTERMEDIATE INTERVAL*****STIFF FOAM RECIPE:***

- 1) 1 ppb Soda Ash / Sodium Carbonate-Alkalinity Control Agent
- 2) 1 ppb Conqor 404 ( 11.76 ppg) / Corrosion Inhibitor
- 3) 4 ppb KLA-Gard ( 9.17 ppg) / Amine Acid Complex-Shale Stabilizer
- 4) 1ppb Mil Pac R / Sodium Carboxymethylcellulose-Filtration Control Agent
- 5) 12 ppb KCL / Potassium Chloride-inorganic Salt
- 6) Fresh Water 80 bbls
- 7) Air

**PRODUCTION INTERVAL**

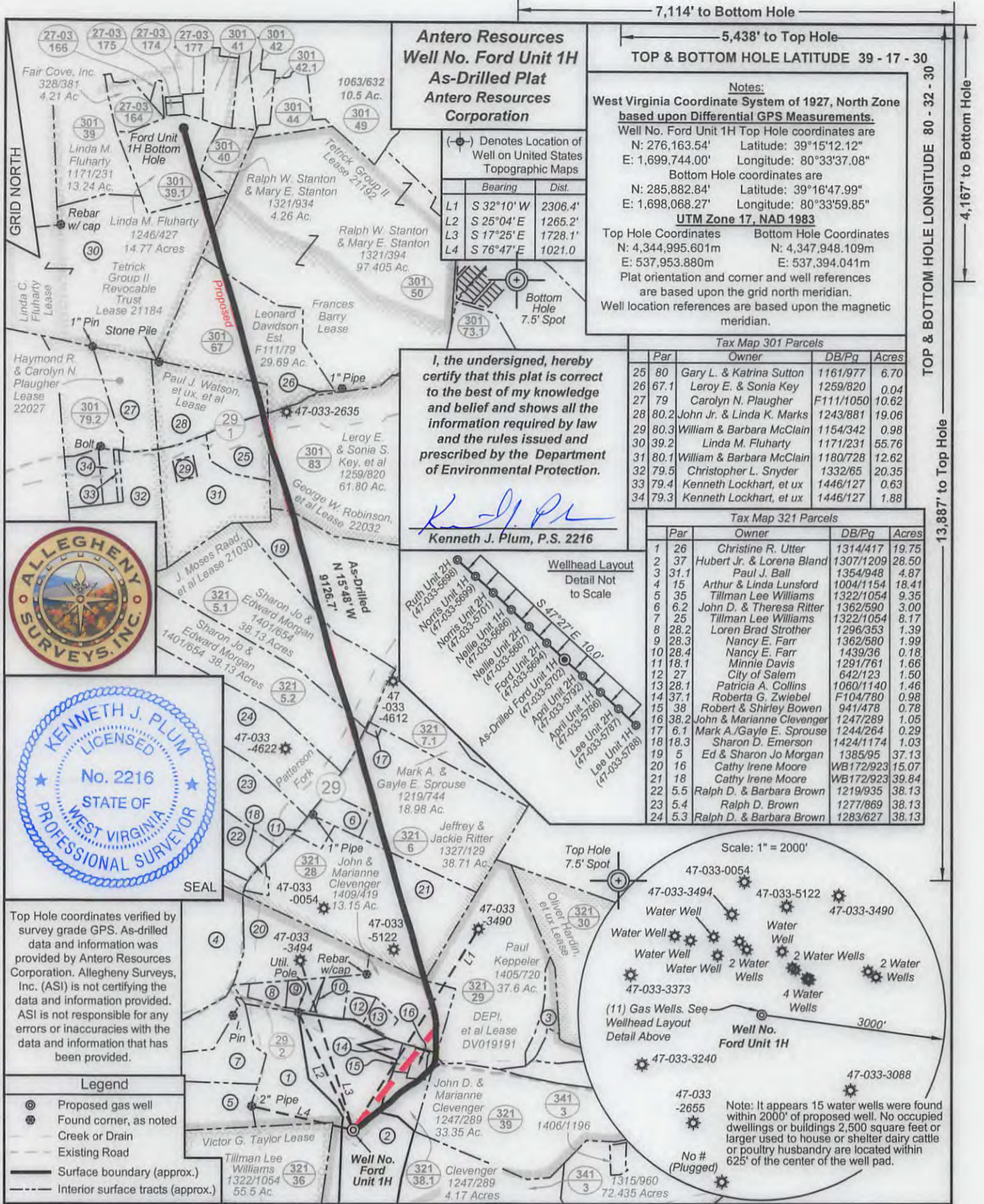
1. Alpha 1655  
Salt Inhibitor
2. Mil-Carb  
Calcium Carbonate
3. Cottonseed Hulls  
Cellulose-Cottonseed Pellets – LCM
4. Mil-Seal  
Vegetable, Cotton & Cellulose-Based Fiber Blend – LCM
5. Clay-Trol  
Amine Acid Complex – Shale Stabilizer
6. Xan-Plex  
Viscosifier For Water Based Muds
7. Mil-Pac (All Grades)  
Sodium Carboxymethylcellulose – Filtration Control Agent
8. New Drill  
Anionic Polyacrylamide Copolymer Emulsion – Shale Stabilizer
9. Caustic Soda  
Sodium Hydroxide – Alkalinity Control
10. Mil-Lime  
Calcium Hydroxide – Lime
11. LD-9  
Polyether Polyol – Drilling Fluid Defoamer
12. Mil Mica  
Hydro-Biotite Mica – LCM

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13. Escaid 110  
Drilling Fluid Solvent – Aliphatic Hydrocarbon
14. Ligco  
Highly Oxidized Leonardite – Filtration Control Agent
15. Super Sweep  
Polypropylene – Hole Cleaning Agent
16. Sulfatrol K  
Drilling Fluid Additive – Sulfonated Asphalt Residuum
17. Sodium Chloride, Anhydrous  
Inorganic Salt
18. D-D  
Drilling Detergent – Surfactant
19. Terra-Rate  
Organic Surfactant Blend
20. W.O. Defoam  
Alcohol-Based Defoamer
21. Perma-Lose HT  
Fluid Loss Reducer For Water-Based Muds
22. Xan-Plex D  
Polysaccharide Polymer – Drilling Fluid Viscosifier
23. Walnut Shells  
Ground Cellulosic Material – Ground Walnut Shells – LCM
24. Mil-Graphite  
Natural Graphite – LCM
25. Mil Bar  
Barite – Weighting Agent
26. X-Cide 102  
Biocide
27. Soda Ash  
Sodium Carbonate – Alkalinity Control Agent
28. Clay Trol  
Amine Acid complex – Shale Stabilizer
29. Sulfatrol  
Sulfonated Asphalt – Shale Control Additive
30. Xanvis  
Viscosifier For Water-Based Muds
31. Milstarch  
Starch – Fluid Loss Reducer For Water Based Muds
32. Mil-Lube  
Drilling Fluid Lubricant

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I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the rules issued and prescribed by the Department of Environmental Protection.

*Kenneth J. Plum*

**Kenneth J. Plum, P.S. 2216**



Top Hole coordinates verified by survey grade GPS. As-drilled data and information was provided by Antero Resources Corporation. Allegheny Surveys, Inc. (ASI) is not certifying the data and information provided. ASI is not responsible for any errors or inaccuracies with the data and information that has been provided.

- Legend**
- ⊙ Proposed gas well
  - ⊙ Found corner, as noted
  - Creek or Drain
  - Existing Road
  - Surface boundary (approx.)
  - Interior surface tracts (approx.)

FILE NO: 11-36-TM-12  
DRAWING NO: Ford 1H As-Drilled Plat  
SCALE: 1" = 1200'  
MINIMUM DEGREE OF ACCURACY: Submeter  
PROVEN SOURCE OF ELEVATION: WVDOT, Bridgeport, WV

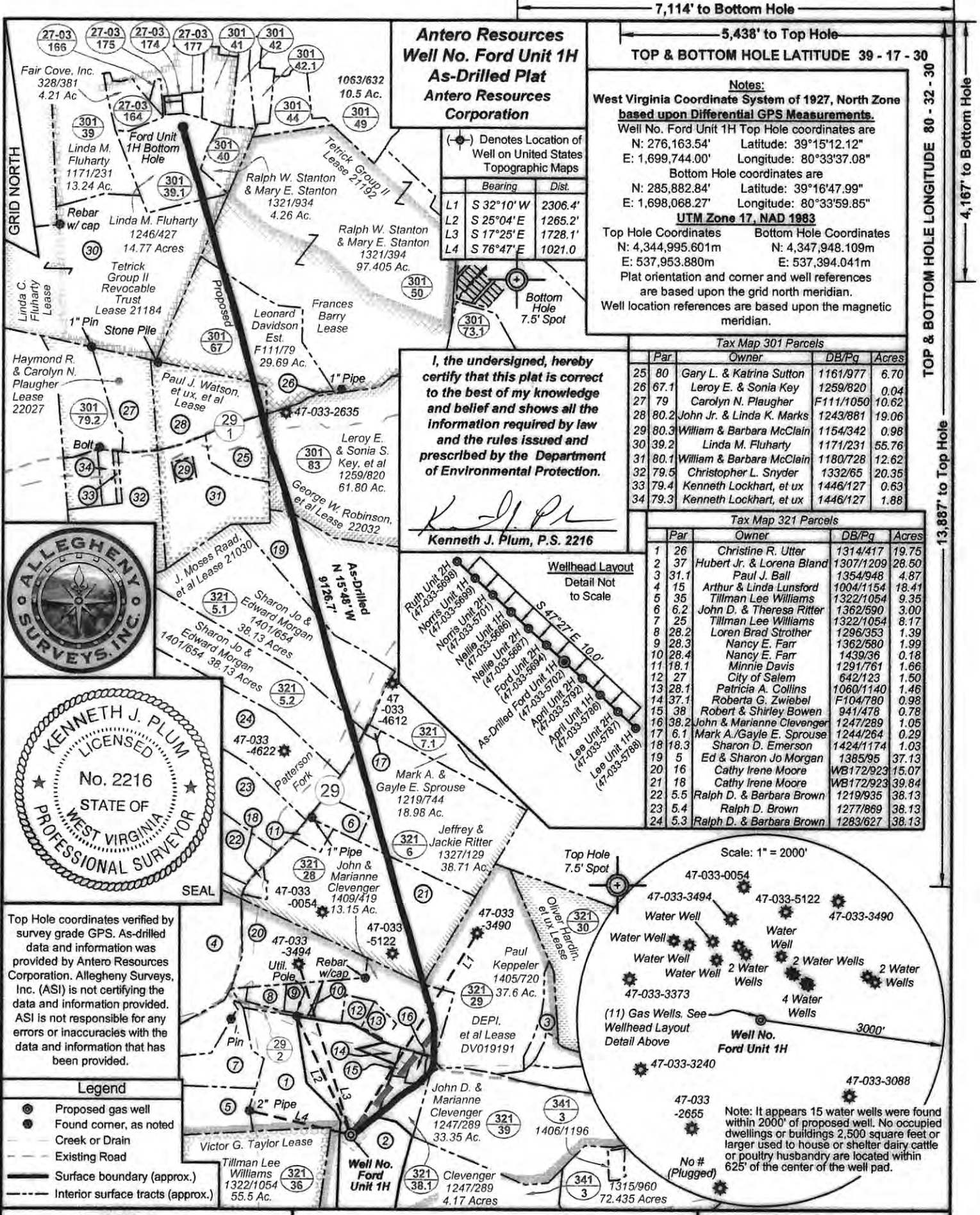
**STATE OF WEST VIRGINIA**  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
**OIL AND GAS DIVISION**

DATE: March 3 2017  
OPERATOR'S WELL NO. Ford Unit 1H  
API WELL NO  
47 - 033 - 05702F  
STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
(IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
LOCATION: ELEVATION: Original Grade - 1395' Existing Grade - 1376' WATERSHED: Tenmile Creek QUADRANGLE: Salem  
DISTRICT: Tenmile COUNTY: Harrison  
SURFACE OWNER: Hubert Jr. & Lorena Bland Paul J. Watson, et ux, et al ACREAGE: 28.50  
ROYALTY OWNER: DEPI, et al; Tetrick Group II Revocable Trust; J. Moses Raad, et al LEASE NO: DV019191; 21030 ACREAGE: 283; 447; 40  
PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ 7.546' TVD  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale DEPTH: 16,966' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System  
ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road  
Denver, CO 80202 Charleston, WV 25313





**Antero Resources  
Well No. Ford Unit 1H  
As-Drilled Plat  
Antero Resources  
Corporation**

Denotes Location of Well on United States Topographic Maps

Bearing	Dist.
L1 S 32°10' W	2306.4'
L2 S 25°04' E	1265.2'
L3 S 17°25' E	1728.1'
L4 S 76°47' E	1021.0'

7,114' to Bottom Hole

5,438' to Top Hole

**TOP & BOTTOM HOLE LATITUDE 39 - 17 - 30**

**TOP & BOTTOM HOLE LONGITUDE 80 - 32 - 30**

**Notes:**  
West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.  
Well No. Ford Unit 1H Top Hole coordinates are  
N: 276,163.54' Latitude: 39°15'12.12"  
E: 1,699,744.00' Longitude: 80°33'37.08"  
Bottom Hole coordinates are  
N: 285,882.84' Latitude: 39°16'47.99"  
E: 1,698,068.27' Longitude: 80°33'59.85"  
**UTM Zone 17, NAD 1983**  
Top Hole Coordinates N: 4,344,995.601m E: 537,953.880m  
Bottom Hole Coordinates N: 4,347,948.109m E: 537,394.041m  
Plat orientation and corner and well references are based upon the grid north meridian.  
Well location references are based upon the magnetic meridian.

I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the rules issued and prescribed by the Department of Environmental Protection.

*Kenneth J. Plum*  
**Kenneth J. Plum, P.S. 2216**

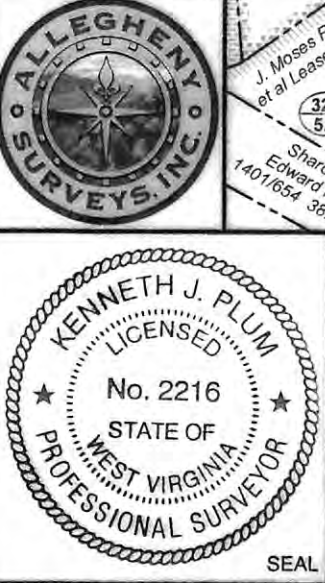
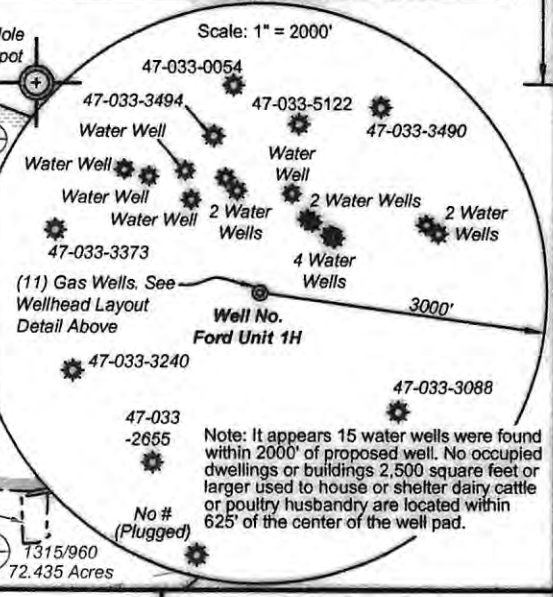
**Tax Map 301 Parcels**

Par	Owner	DB/Pg	Acres
25	80 Gary L. & Katrina Sutton	1161/977	6.70
26	67.1 Leroy E. & Sonia Key	1259/820	0.04
27	79 Carolyn N. Plaugher	F111/1050	10.62
28	80.2 John Jr. & Linda K. Marks	1243/881	19.06
29	80.3 William & Barbara McClain	1154/342	0.98
30	39.2 Linda M. Fluharty	1171/231	55.76
31	80.1 William & Barbara McClain	1180/728	12.62
32	79.5 Christopher L. Snyder	1332/65	20.35
33	79.4 Kenneth Lockhart, et ux	1446/127	0.63
34	79.3 Kenneth Lockhart, et ux	1446/127	1.88

**Tax Map 321 Parcels**

Par	Owner	DB/Pg	Acres
1	26 Christine R. Utter	1314/417	19.75
2	37 Hubert Jr. & Lorena Bland	1307/1209	26.50
3	31.1 Paul J. Ball	1354/948	4.87
4	15 Arthur & Linda Lunsford	1004/1154	18.41
5	35 Tillman Lee Williams	1322/1054	9.35
6	6.2 John D. & Theresa Ritter	1362/590	3.00
7	25 Tillman Lee Williams	1322/1054	8.17
8	28.2 Loren Brad Strother	1296/353	1.39
9	28.3 Nancy E. Farr	1362/580	1.99
10	28.4 Nancy E. Farr	1439/36	0.18
11	18.1 Minnie Davis	1291/761	1.66
12	27 City of Salem	642/123	1.50
13	28.1 Patricia A. Collins	1060/1140	1.46
14	37.1 Roberta G. Zwiebel	F104/780	0.98
15	38 Robert & Shirley Bowen	941/478	0.78
16	38.2 John & Marianne Clevenger	1247/289	1.05
17	6.1 Mark A./Gayle E. Sprouse	1244/264	0.29
18	18.3 Sharon D. Emerson	1424/1174	1.03
19	5 Ed & Sharon Jo Morgan	1385/95	37.13
20	16 Cathy Irene Moore	WB172/923	15.07
21	18 Cathy Irene Moore	WB172/923	39.84
22	5.5 Ralph D. & Barbara Brown	1219/935	38.13
23	5.4 Ralph D. Brown	1277/869	38.13
24	5.3 Ralph D. & Barbara Brown	1283/627	38.13

**Wellhead Layout  
Detail Not to Scale**



Top Hole coordinates verified by survey grade GPS. As-drilled data and information was provided by Antero Resources Corporation. Allegheny Surveys, Inc. (ASI) is not certifying the data and information provided. ASI is not responsible for any errors or inaccuracies with the data and information that has been provided.

- Legend**
- Proposed gas well
  - Found corner, as noted
  - Creek or Drain
  - Existing Road
  - Surface boundary (approx.)
  - Interior surface tracts (approx.)

FILE NO: 11-36-TM-12  
DRAWING NO: Ford 1H As-Drilled Plat  
SCALE: 1" = 1200'  
MINIMUM DEGREE OF ACCURACY: Submeter  
PROVEN SOURCE OF ELEVATION: WVDOT, Bridgeport, WV

**STATE OF WEST VIRGINIA**  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
**OIL AND GAS DIVISION**

DATE: March 3 2017  
OPERATOR'S WELL NO. Ford Unit 1H  
API WELL NO. 47-033-05702F  
STATE OF WEST VIRGINIA  
HARRIS COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
(IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
Original Grade - 1395'  
Existing Grade - 1376'  
LOCATION: ELEVATION: \_\_\_\_\_ WATERSHED: Tenmile Creek QUADRANGLE: Salem  
DISTRICT: Tenmile COUNTY: Harrison  
SURFACE OWNER: Hubert Jr. & Lorena Bland Paul J. Watson, et ux, et al 22032; 21184 ACREAGE: 28.50 70.866  
ROYALTY OWNER: DEPI, et al; Tetrick Group II Revocable Trust; J. Moses Raad, et al LEASE NO: DV019191; 21030 ACREAGE: 283; 447; 40 62; 108  
PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ 7.546' TVD  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale DEPTH: 16,966' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System  
ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road  
Denver, CO 80202 Charleston, WV 25313



INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE  
Chapter 22, Article 6A, Section 5(a)(5)  
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<b><u>DEPI, et al Lease DV019191</u></b>			
Dominion Exploration & Production, Inc.	Dominion Appalachian Development, LLC	1/8	1424/0184
Dominion Exploration & Production, Inc., Dominion Transmission, Inc. and Dominion Appalachian Development, LLC	Antero Resources Appalachian Corporation	Assignment	1424/0642
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<b><u>J. Moses Raad, et al Lease 21030</u></b>			
J. Moses Raad, et al	Garner and Gawthrop, Inc.	1/8	1120/0056
Garner and Gawthrop, Inc., et al	Bluestone Energy Partners	Assignment	1459/0310
Bluestone Energy Partners	Antero Resources Bluestone, LLC, a wholly owned subsidiary of Antero Resources Appalachian Corporation	Affidavit Regarding Merger	AOI 0035/1236
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<b><u>George W. Robinson, et al Lease 22032</u></b>			
George W. Robinson, et al	Alton Skinner	1/8	1101/0574
Alton Skinner	Crystal G. Skinner Barley, et al	Settlement	Settlement Book 0443/0657
Crystal G. Skinner Barley, et al	DC Petroleum, Inc.	Conveyance	Misc. Book 0035/1088
DC Petroleum, Inc.	Bluestone Energy Partners	Assignment	1461/1034
Bluestone Energy Partners	Antero Resources Bluestone, LLC a wholly owned subsidiary of Antero Resources Appalachian Corporation	Affidavit Regarding Merger	AOI 0035/1236
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<b><u>Paul J. Watson, et ux, et al Lease</u></b>			
Paul J. Watson, et ux, et al	Clarence W. Mutschelknaus	1/8	1421/0522
Clarence W. Mutschelknaus	Bluestone Energy Partners	Assignment	1473/0453
Bluestone Energy Partners	Antero Resources Bluestone, LLC a wholly owned subsidiary of Antero Resources Appalachian Corporation	Affidavit Regarding Merger	AOI 0035/1236
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<b><u>Frances Barry Lease</u></b>			
Frances Barry	Antero Resources Appalachian Corporation	1/8+	1517/0961
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

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\*Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE  
Chapter 22, Article 6A, Section 5(a)(5)  
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<u>Tetrick Group II Revocable Trust Lease 21184</u>	Tetrick Group II Revocable Trust Bluestone Energy Partners	Bluestone Energy Partners Antero Resources Bluestone, LLC, a wholly owned subsidiary of Antero Resources Appalachian Corp.	1/8 Affidavit Regarding Merger	1425/0761 AOI 0035/1236
	Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

\*Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.

**Acknowledgement of Possible Permitting/Approval  
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: Antero Resources Corporation  
 By: Kevin Kilstrom  
 Its: Senior VP of Production

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 Environmental Protection



FORM WW-6A1  
EXHIBIT 1

4703305702F

FILED

JUN 10 2013

Natalie E. Tennant  
Secretary of State  
1900 Kanawha Blvd E  
Bldg 1, Suite 157-K  
Charleston, WV 25305



Penny Barker, Manager  
IN THE OFFICE OF Corporations Division  
SECRETARY OF STATE Tel: (304)558-8000  
Fax: (304)558-8381

Website: [www.wvsos.com](http://www.wvsos.com)  
E-mail: [business@wvsos.com](mailto:business@wvsos.com)

Office Hours: Monday - Friday  
8:30 a.m. - 5:00 p.m. ET

FILE ONE ORIGINAL  
(Two if you want a filed  
stamped copy returned to you)  
FEE: \$25.00

APPLICATION FOR  
AMENDED CERTIFICATE  
OF AUTHORITY

\*\*\*\* In accordance with the provisions of the West Virginia Code, the undersigned corporation hereby \*\*\*\*  
applies for an Amended Certificate of Authority and submits the following statement:

- Name under which the corporation was authorized to transact business in WV: Antero Resources Appalachian Corporation
- Date Certificate of Authority was issued in West Virginia: 6/25/2008
- Corporate name has been changed to: Antero Resources Corporation  
(Attach one Certified Copy of Name Change as filed in home State of incorporation.)
- Name the corporation elects to use in WV: Antero Resources Corporation  
(due to home state name not being available)
- Other amendments: \_\_\_\_\_  
(attach additional pages if necessary)
- Name and phone number of contact person. (This is optional, however, if there is a problem with the filing, listing a contact person and phone number may avoid having to return or reject the document.)  
Alwyn A. Schopp (303) 367-7310  
Contact Name Phone Number
- Signature information (See below \*Important Legal Notice Regarding Signature\*):  
Print Name of Signer: Alwyn A. Schopp Title/Capacity: Authorized Person  
Signature: [Handwritten Signature] Date: June 10, 2013

**\*Important Legal Notice Regarding Signature:** For West Virginia Code §31D-1-129. Penalty for signing false document. Any person who signs a document he or she knows is false in any material respect and knows that the document is to be delivered to the secretary of state for filing is guilty of a misdemeanor and, upon conviction thereof, shall be fined not more than one thousand dollars or confined in the county or regional jail not more than one year, or both.

Form CF-4

Issued by the Office of the Secretary of State

WV011 - 04/6/2011 Walker Kluver Online

NOV 21 2016  
Office of Oil and Gas  
WV Department of Environmental Protection

03/10/2017

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE CERTIFICATION**

Date of Notice Certification: 11/17/2016

API No. 47- 033 - 05702

Operator's Well No. Ford Unit 1H

Well Pad Name: Existing Hubert Pad

**Notice has been given:**

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>537953.880m</u>
County: <u>Harrison</u>		Northing: <u>4344995.601m</u>
District: <u>Tenmile</u>	Public Road Access: <u>CR 50/6</u>	
Quadrangle: <u>Salem &amp; Big Isaac</u>	Generally used farm name: <u>Hubert Jr. &amp; Lorena Bland</u>	
Watershed: <u>Tenmile Creek</u>		

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 40px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p><b>OOG OFFICE USE ONLY</b></p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
---	---

**Required Attachments:**

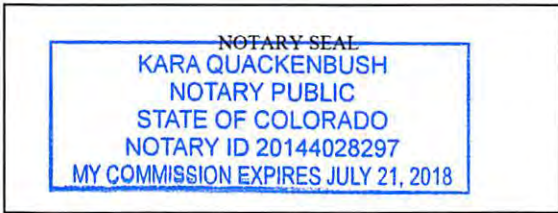
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been notified as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

**RECEIVED**  
Office of Oil and Gas  
NOV 21 2016  
WV Department of  
Environmental Protection

**Certification of Notice is hereby given:**

THEREFORE, I Kevin Kilstrom, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator:	<u>Antero Resources Corporation</u>	Address:	<u>1615 Wynkoop Street</u>
By:	<u>Kevin Kilstrom</u> <i>[Signature]</i>		<u>Denver, CO 80202</u>
Its:	<u>Senior VP of Production</u>	Facsimile:	<u>303-357-7315</u>
Telephone:	<u>303-357-7310</u>	Email:	<u>kquackenbush@anteroresources.com</u>



Subscribed and sworn before me this 17 day of November, 2016  
*[Signature]* Notary Public  
 My Commission Expires July 21, 2018

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [deprivacyofficer@wv.gov](mailto:deprivacyofficer@wv.gov).

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 WV Department of  
 Environmental Protection



**STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE OF APPLICATION**

**Notice Time Requirement:** notice shall be provided no later than the **filing date of permit application.**

**Date of Notice:** 11/18/2016 **Date Permit Application Filed:** 11/18/2016

**Notice of:**

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

**Delivery method pursuant to West Virginia Code § 22-6A-10(b)**

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice  WSSP Notice  E&S Plan Notice  Well Plat Notice is hereby provided to:

SURFACE OWNER(s)  
Name: PLEASE SEE ATTACHMENT  
Address: \_\_\_\_\_

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

SURFACE OWNER(s) (Road and/or Other Disturbance)  
Name: PLEASE SEE ATTACHMENT  
Address: \_\_\_\_\_

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)  
Name: PLEASE SEE ATTACHMENT  
Address: \_\_\_\_\_

COAL OWNER OR LESSEE  
Name: PLEASE SEE ATTACHMENT  
Address: \_\_\_\_\_

COAL OPERATOR  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

WATER PURVEYOR(s)/OWNER(s) OF WATER WELL,  
SPRING OR OTHER WATER SUPPLY SOURCE  
Name: PLEASE SEE ATTACHMENT  
Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE FIELD  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

\*Please attach additional forms if necessary



**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

**This Notice Shall Include:**

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Well Location Restrictions**

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items



examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

**Water Well Testing:**

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

**Water Testing Laboratories:**

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

**Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:**

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

**Written Comment:**

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

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**Time Limits and Methods for Filing Comments.**

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

**Comment Requirements**

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

**Permit Denial or Condition**

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

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WW-6A  
(8-13)

API NO. 47- 033 - 05702  
OPERATOR WELL NO. Ford Unit 1H  
Well Pad Name: Existing Hubert Pad

47-033-05702 P

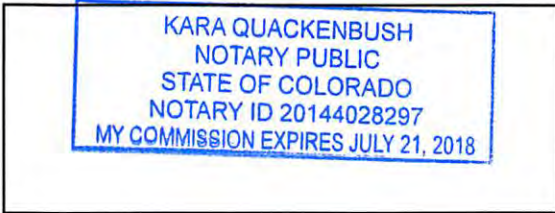
**Notice is hereby given by:**

Well Operator: Antero Resources Corporation  
Telephone: (303) 357-7310  
Email: kquackenbush@anteroresources.com

Address: 1615 Wynkoop Street  
Denver, CO 80202  
Facsimile: 303-357-7315

**Oil and Gas Privacy Notice:**

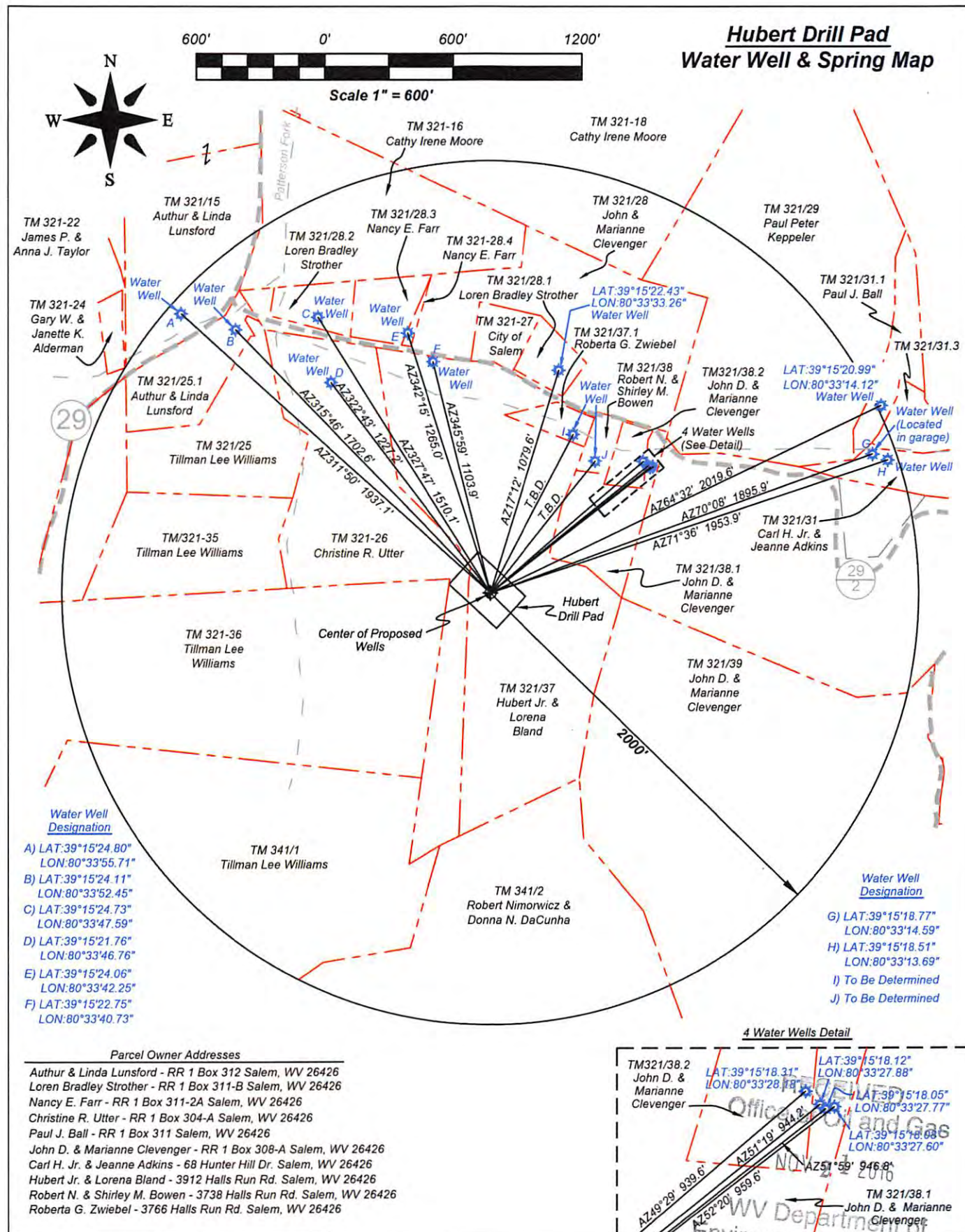
The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).



Subscribed and sworn before me this 18 day of November 2016  
Kara Quackenbush Notary Public

My Commission Expires July 21, 2018

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03/10/2017





**WW-6A Notice of Application Attachment (HUBERT PAD):****List of Surface Owner(s) with Proposed Disturbance associated with Hubert Well Pad:**

**WELL PAD – All owners were notified of all well work permit applications, and have executed signed Surface Use Agreements with Antero Resources Corporation.**

**TM 321 PCL 26**

**Owner:** Christine R. Utter  
**Address:** RR 1 Box 304A  
 Salem, WV 26426

**Owner:** Christine R. Utter (2<sup>nd</sup> Address)  
**Address:** 3988 Halls Run Rd.  
 Salem, WV 26426

**TM 321 PCL 36**

**Owner:** Tillman Lee Williams  
**Address:** 1545 Flinderation Rd.  
 Salem, WV 26426

**Owner:** Tillman Lee Williams  
 (2<sup>nd</sup> Address)  
**Address:** RR 5 Box 706  
 Salem, WV 26426

**TM 321 PCL 37**

**Owner:** Hubert Jr. & Lorena Bland  
**Address:** 3912 Halls Run Rd.  
 Salem, WV 26426

**Owner:** Hubert Jr. & Lorena Bland  
 (2<sup>nd</sup> Address)  
**Address:** RR 1 Box 305  
 Salem, WV 26426

**ROAD AND/OR OTHER DISTURBANCE – All owners have executed signed Surface Use and/or Road Agreements with Antero Resources Corporation. However, they were only notified if their tracts were overlying the oil and gas leasehold being developed by the proposed well work.**

**TM 321 PCL 39**

**Owner:** John D. & Marianne Clevenger  
**Address:** RR 1 Box 308A  
 Salem, WV 26426

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**ROAD AND/OR OTHER DISTURBANCE (CONTINUED...)****TM 13 PCL 24.2**

**Owner:** Robert N. Nimorwicz & Donna Nimorwicz DaChunha  
**Address:** 6816 Kingfisher Ct.  
Frederick, MD 21703

**TM 341 PCL 3**

**Owner:** Arnet L. Thompson  
**Address:** 10736 Arnez Rd.  
Jacksonville, FL 32218

\*Please note the As-Built design shows an affected area from an associated frac pit; however, Antero received a Certificate of Approval to convert it to the Hubert Centralized Waste Water Pit (033-WPC-00001) on 7/15/16.

**COAL OWNER OR LESSEE**

**Owner:** Consolidation Coal Company  
CONSOL Energy, Inc. – CNX Center  
Engineering & Operations Support – Coal, ATTN: Analyst  
**Address:** 1000 CONSOL Energy Dr.  
Canonsburg, PA 15317

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**WW-6A Notice of Application Attachment (HUBERT PAD):****WATER SOURCE OWNERS – Within 1500'**

\*NOTE: On attached water well map 6 other water sources are identified, but they are located greater than 1500' from the subject well pad location.

**Owner:** Hubert Bland, Jr. & Lorena Bland  
**Address:** 3912 Halls Run Rd.  
 Salem, WV 26426

**Owner:** Christine R. Utter  
**Address:** RR 1 Box 304A  
 Salem, WV 26426

**Owner:** Loren Brad Strother  
**Address:** 4011 Halls Run Rd.  
 Salem, WV 26426

**Owner:** John D. & Marianne Clevenger (4 water wells)  
**Address:** RR 1 Box 308A  
 Salem, WV 26426

**Owner:** Nancy E. Farr  
**Address:** 3952 Halls Run Rd.  
 Salem, WV 26426

**Owner:** Robert G. Zwiebel  
**Address:** 3766 Halls Run Rd.  
 Salem, WV 26426

**Owner:** Robert N. & Shirley M. Bowen  
**Address:** 3738 Halls Run Rd.  
 Salem, WV 26426



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## WW-6A4 Notice of Intent to Drill Attachment:

### Surface Owners:

Tax Parcel ID: 321-26

**Owner:** Christine R. Utter  
**Address:** RR 1 Box 304A  
Salem, WV 26426

**Owner:** Christine R. Utter (2<sup>nd</sup> Address)  
**Address:** 3988 Halls Run Rd.  
Salem, WV 26426

### Surface Owners:

Tax Parcel ID: 321-36

**Owner:** Tillman Lee Williams  
**Address:** 1545 Flinderation Rd.  
Salem, WV 26426

**Owner:** Tillman Lee Williams  
(2<sup>nd</sup> Address)  
**Address:** RR 5 Box 706  
Salem, WV 26426



### Surface Owners:

Tax Parcel ID: 321-37

**Owner:** Hubert Jr. & Lorena Bland  
**Address:** 3912 Halls Run Rd.  
Salem, WV 26426

**Owner:** Hubert Jr. & Lorena Bland  
(2<sup>nd</sup> Address)  
**Address:** RR 1 Box 305  
Salem, WV 26426

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**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF PLANNED OPERATION**

**Notice Time Requirement:** notice shall be provided no later than the **filing date of permit application.**

**Date of Notice:** 11/18/2016      **Date Permit Application Filed:** 11/18/2016

**Delivery method pursuant to West Virginia Code § 22-6A-16(c)**

CERTIFIED MAIL                       HAND  
RETURN RECEIPT REQUESTED              DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

**Notice is hereby provided to the SURFACE OWNER(s)**

(at the address listed in the records of the sheriff at the time of notice):

Name: PLEASE SEE ATTACHMENT                      Name: \_\_\_\_\_  
Address: \_\_\_\_\_    Address: \_\_\_\_\_

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>537953.880m</u>
County:	<u>Harrison</u>		Northing:	<u>4344995.601m</u>
District:	<u>Tenmile</u>	Public Road Access:		<u>CR 50/6</u>
Quadrangle:	<u>Salem &amp; Big Isaac</u>	Generally used farm name:		<u>Hubert Jr. &amp; Lorena Bland</u>
Watershed:	<u>Tenmile Creek</u>			

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

Well Operator:	<u>Antero Resources Corporation</u>	Address:	<u>1615 Wynkoop Street</u>
Telephone:	<u>(303) 357-7310</u>		<u>Denver, CO 80202</u>
Email:	<u>kquackenbush@anteroresources.com</u>	Facsimile:	<u>303-357-7315</u>

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

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**WW-6A5 Notice of Planned Operations Attachment (HUBERT PAD):****List of Surface Owner(s) with Proposed Disturbance associated with Hubert Well Pad:**

**WELL PAD – Owners were notified of all well work permit applications, and have executed a signed Surface Use Agreement with Antero Resources Corporation.**

**TM 321 PCL 26**

**Owner:** Christine R. Utter  
**Address:** RR 1 Box 304A  
 Salem, WV 26426

**Owner:** Christine R. Utter (2<sup>nd</sup> Address)  
**Address:** 3988 Halls Run Rd.  
 Salem, WV 26426

**TM 321 PCL 36**

**Owner:** Tillman Lee Williams  
**Address:** 1545 Flinderation Rd.  
 Salem, WV 26426

**Owner:** Tillman Lee Williams  
 (2<sup>nd</sup> Address)  
**Address:** RR 5 Box 706  
 Salem, WV 26426

**TM 321 PCL 37**

**Owner:** Hubert Jr. & Lorena Bland  
**Address:** 3912 Halls Run Rd.  
 Salem, WV 26426

**Owner:** Hubert Jr. & Lorena Bland  
 (2<sup>nd</sup> Address)  
**Address:** RR 1 Box 305  
 Salem, WV 26426

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 Office of Oil and Gas

NOV 21 2016

WV Department of  
 Environmental Protection



## WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

## Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110  
 Charleston, West Virginia 25305-0430 • (304) 558-3505

Earl Ray Tomblin  
 Governor

Paul A. Mattox, Jr., P. E.  
 Secretary of Transportation/  
 Commissioner of Highways

Reissued November 15, 2016

James A. Martin, Chief  
 Office of Oil and Gas  
 Department of Environmental Protection  
 601 57<sup>th</sup> Street, SE  
 Charleston, WV 25304

Subject: DOH Permit for the Hubert Pad, Harrison County  
 Ford Unit 1H Well site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #04-2012-0815 which has been issued to Antero Resources Corporation for access to the State Road for a well site located off of Harrison County Route 50/6 SLS.

The operator has signed a STATEWIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton, P.E.  
 Regional Maintenance Engineer  
 Central Office O&G Coordinator

Cc: Kara Quackenbush  
 Antero Resources Corporation  
 CH, OM, D-4  
 File

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WV Department of  
 Environmental Protection

03/10/2017



# List of Anticipated Additives Used for Fracturing or Stimulating Well

4703305702F

Additives	Chemical Abstract Service Number (CAS #)
Fresh Water	7732-18-5
2 Phosphobutane 1,2,4 tricarboxylic acid	37971-36-1
Ammonium Persulfate	7727-54-0
Anionic copolymer	Proprietary
Anionic polymer	Proprietary
BTEX Free Hydrotreated Heavy Naphtha	64742-48-9
Cellulase enzyme	Proprietary
Demulsifier Base	Proprietary
Ethoxylated alcohol blend	Mixture
Ethoxylated Nonylphenol	68412-54-4
Ethoxylated oleylamine	26635-93-8
Ethylene Glycol	107-21-1
Glycol Ethers	111-76-2
Guar gum	9000-30-0
Hydrogen Chloride	7647-01-0
Hydrotreated light distillates, non-aromatic, BTEX free	64742-47-8
Isopropyl alcohol	67-63-0
liquid, 2,2-dibromo-3-nitrilopropionamide	10222-01-2
Microparticle	Proprietary
Petroleum Distillates (BTEX Below Detect)	64742-47-8
Polyacrylamide	57-55-6
Propargyl Alcohol	107-19-7
Propylene Glycol	57-55-6
Quartz	14808-60-7
Sillica, crystalline quartz	7631-86-9
Sodium Chloride	7647-14-5
Sodium Hydroxide	1310-73-2
Sugar	57-50-1
Surfactant	68439-51-0
Suspending agent (solid)	14808-60-7
Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7
Solvent Naphtha, petroleum, heavy aliph	64742-96-7
Soybean Oil, Me ester	67784-80-9
Copolymer of Maleic and Acrylic Acid	52255-49-9
DETA phosphonate	15827-60-8
Hexamethylene Triamine Penta	34690-00-1
Phosphino Carboxylic acid polymer	71050-62-9
Hexamethylene Diamine Tetra	23605-74-5
2-Propenoic acid, polymer with 2 propenamide	9092-06-9
Hexamethylene diamine penta (methylene phosphonic acid)	23605-74-5
Diethylene Glycol	111-46-0
Methenamine	100-97-0
Polyethylene polyamine	68608-57-8
Coco amine	61791-14-8
2-Propyn-1-olcompound with methyloxirane	38172-91-7

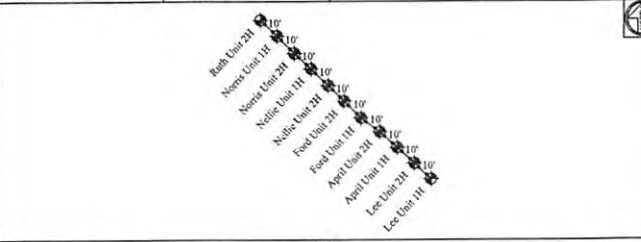
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Department of  
Environmental Protection

WEST VIRGINIA  
COUNTY MAP

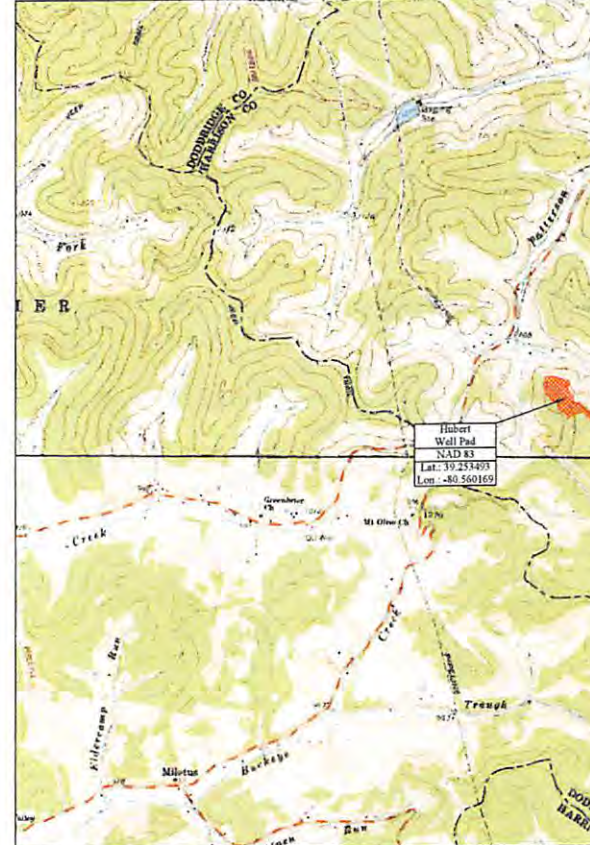


Center of Centralized Pit	
WV-NAD 83 N: 276214.36	WV-NAD 83 E: 1668289.32
WV-NAD 27 N: 276177.48	WV-NAD 27 E: 1701879.35
Lat. NAD 83: 39.253493	Lon. NAD 83: -80.560169
Lat. NAD 27: 39.253405	Lon. NAD 27: -80.560350
UTM 17 NAD 83 N: 4344999.78	UTM 17 NAD 83 E: 537949.55

Site Entrance	
WV-NAD 83 N: 275968.89	WV-NAD 83 E: 1670438.69
WV-NAD 27 N: 275931.96	WV-NAD 27 E: 1701879.35
Lat. NAD 83: 39.252889	Lon. NAD 83: -80.552569
Lat. NAD 27: 39.252801	Lon. NAD 27: -80.552750
UTM 17 NAD 83 N: 4344935.90	UTM 17 NAD 83 E: 536005.60



Well Table					
<b>Ruth Unit 2H</b>		<b>Norris Unit 1H</b>		<b>Nettie Unit 1H</b>	
WV-NAD 83 N: 276242.31	WV-NAD 83 E: 1668260.04	WV-NAD 83 N: 276255.54	WV-NAD 83 E: 1668267.22	WV-NAD 83 N: 276221.50	WV-NAD 83 E: 1668281.93
WV-NAD 27 N: 276205.44	WV-NAD 27 E: 1699790.73	WV-NAD 27 N: 276198.66	WV-NAD 27 E: 1699707.91	WV-NAD 27 N: 276184.63	WV-NAD 27 E: 1699722.62
Lat. NAD 83: 39.253569	Lon. NAD 83: -80.560273	Lat. NAD 83: 39.253551	Lon. NAD 83: -80.560248	Lat. NAD 83: 39.253513	Lon. NAD 83: -80.560195
Lat. NAD 27: 39.253481	Lon. NAD 27: -80.560454	Lat. NAD 27: 39.253463	Lon. NAD 27: -80.560429	Lat. NAD 27: 39.253425	Lon. NAD 27: -80.560376
UTM 17 NAD 83 N: 4345006.15	UTM 17 NAD 83 E: 537940.49	UTM 17 NAD 83 N: 4345006.12	UTM 17 NAD 83 E: 537942.71	UTM 17 NAD 83 N: 4345001.92	UTM 17 NAD 83 E: 537947.26
<b>Nettie Unit 2H</b>		<b>Ford Unit 2H</b>		<b>April Unit 2H</b>	
WV-NAD 83 N: 276214.35	WV-NAD 83 E: 1668289.32	WV-NAD 83 N: 276207.70	WV-NAD 83 E: 1668296.18	WV-NAD 83 N: 276194.46	WV-NAD 83 E: 1668311.40
WV-NAD 27 N: 276177.48	WV-NAD 27 E: 1699790.01	WV-NAD 27 N: 276170.82	WV-NAD 27 E: 1699736.87	WV-NAD 27 N: 276157.58	WV-NAD 27 E: 1699752.08
Lat. NAD 83: 39.253493	Lon. NAD 83: -80.560169	Lat. NAD 83: 39.253475	Lon. NAD 83: -80.560144	Lat. NAD 83: 39.253439	Lon. NAD 83: -80.560099
Lat. NAD 27: 39.253405	Lon. NAD 27: -80.560350	Lat. NAD 27: 39.253387	Lon. NAD 27: -80.560325	Lat. NAD 27: 39.253351	Lon. NAD 27: -80.560271
UTM 17 NAD 83 N: 4344999.78	UTM 17 NAD 83 E: 537949.55	UTM 17 NAD 83 N: 4344999.78	UTM 17 NAD 83 E: 537951.67	UTM 17 NAD 83 N: 4344993.83	UTM 17 NAD 83 E: 537956.37
<b>April Unit 1H</b>		<b>Lee Unit 2H</b>		<b>Lee Unit 1H</b>	
WV-NAD 83 N: 276187.60	WV-NAD 83 E: 1668318.76	WV-NAD 83 N: 276180.93	WV-NAD 83 E: 1668326.13	WV-NAD 83 N: 276174.17	WV-NAD 83 E: 1668333.50
WV-NAD 27 N: 276150.82	WV-NAD 27 E: 1699759.45	WV-NAD 27 N: 276144.06	WV-NAD 27 E: 1699766.82	WV-NAD 27 N: 276137.29	WV-NAD 27 E: 1699774.19
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Lat. NAD 27: 39.253333	Lon. NAD 27: -80.560245	Lat. NAD 27: 39.253315	Lon. NAD 27: -80.560218	Lat. NAD 27: 39.253296	Lon. NAD 27: -80.560192
UTM 17 NAD 83 N: 4344991.80	UTM 17 NAD 83 E: 537958.65	UTM 17 NAD 83 N: 4344989.78	UTM 17 NAD 83 E: 537960.93	UTM 17 NAD 83 N: 4344987.76	UTM 17 NAD 83 E: 537963.21



Project Contacts	
<b>Antero Resources</b>	<b>Survey and Engineer</b>
Robert Wilks - Project Coordinator 304-842-4100 Off. 304-627-7405 Cell	Kenneth Kelly 304-338-6985 Off.
Aaron Kumlar - Construction Manager 304-842-4191 Off. 304-641-8242 Cell	John P. See 304-442-0220 Off.
Eli Wagener - Environmental 304-842-4068 Off. 304-476-9770 Cell	Zackary Summerfield 304-338-6987 Off.
Jon McEvers - Operations Superintendent 304-842-4739 Off. 303-808-2423 Cell	<b>Geotechnical Engineer</b>
	American Geotech, Inc. Keith Patel 304-340-4277 Off.

**Topographic Information:**  
The topographic information shown herein is based on aerial photography by Kelly Surveying PLLC, Disley, WV

MISS UTILITY OF WEST VIRGINIA  
1-800-245-4848  
West Virginia State Law Section XIV, Chapter 24-C requires that you call two business days before you dig in the state of West Virginia.  
**IT'S THE LAW**

Know what's below. Call before you dig.

Antero Resources has already obtained an Encroachment Permit (Form MM-109) from the WV Department of Transportation, Division of Highways, prior to the commencement of any construction activities

The WV Mines Website was consulted. Previous (Current) mining activities are not within the AOI.

Floodplain Conditions	
Do site construction activities take place in a floodplain?	NO
Permit needed from county floodplain coordinator?	NO
Flood Hazard Zone?	X
REC-RAS Study completed?	N/A
Floodplain shown on drawings?	N/A
FIRM Map Number(s) for site:	54033C01202
Acreages of construction in floodplain:	N/A

**Approach Routes:**

\*Option 1 - From US-50 E turn right onto Co Rt 50/1 (Dog Run). Follow Co Rt 50/1 for 0.7 miles. Turn right onto Co Rt 50/73 (E Main St). Follow Co Rt 50/73 for 0.5 miles. Continue straight on Co Rt 29 (South St). Follow Co Rt 29 for 0.5 miles. Continue straight on Co Rt 29 (Patterson Fork Rd). Follow Co Rt 29 for 0.2 miles. Continue straight on Co Rt 29 (Salem Country Rd). Follow Co Rt 29 for 0.4 miles. Continue straight on Co Rt 29 (Patterson Fork Rd). Follow Co Rt 29 for 0.9 miles. Turn left on Co Rt 29/2 (Halls Run Rd). Follow Co Rt 29/2 for 1.0 miles. Turn sharp right on Co Rt 50/6 (Raccoon Run Rd). Follow Co Rt 50/6 for 0.2 miles. The site entrance is on the right (west) side of the road.

\*Option 2 - From US-50 W turn left onto Co Rt 50/8 (Lake Floyd Cir). Follow Co Rt 50/8 for 1.2 miles. Continue straight on Co Rt 50/8 (Halls Run). Follow Co Rt 50/8 for 3.1 miles. Turn right left on Co Rt 50/6 (Raccoon Run Rd). Follow Co Rt 50/6 for 0.2 miles. The site entrance is on the right (west) side of the road.

Site Locations (NAD 27)		
Structure	Latitude (DD)	Longitude (DD)
Site Entrance	39.252801	-80.552750
Center of Well Pad	39.253405	-80.560350



03/10/2017





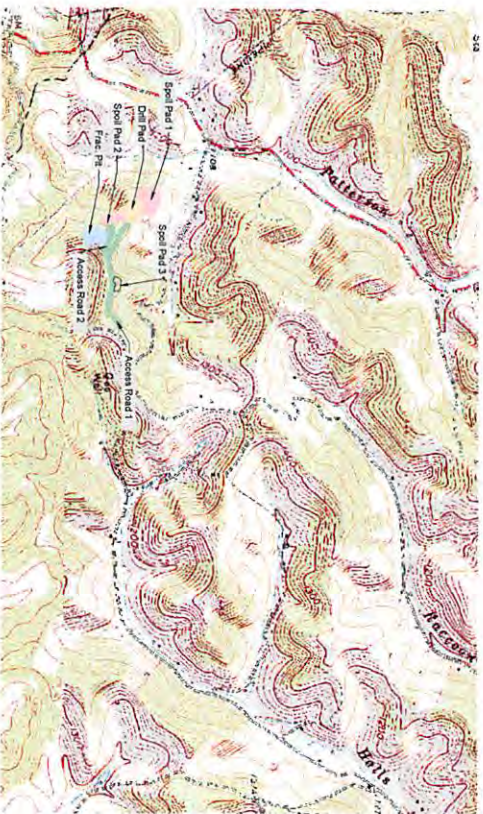


**WVDEP 006**  
**ACCEPTED AS-BUILT**  
 4/17/2016



# HUBERT PAD AS-BUILT PLANS

## ANTERO RESOURCES CORPORATION

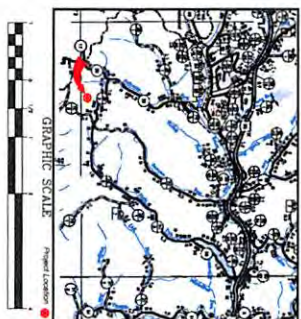


STATE PLANT AND BIODIVERSITY ZONING	WV STATE PLANT AND BIODIVERSITY ZONING	WV STATE PLANT AND BIODIVERSITY ZONING
State Plant and Biodiversity Zone	State Plant and Biodiversity Zone	State Plant and Biodiversity Zone
State Plant and Biodiversity Zone	State Plant and Biodiversity Zone	State Plant and Biodiversity Zone

FLOODPLAIN CONDITIONS	
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN	NO
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR	NO
HEC-RAS STUDY COMPLETED	N/A
FLOODPLAIN SHOW ON DRAWINGS	N/A
FIRM MAP NUMBER(S) FOR SITE	5400300758
ACREAGES OF CONSTRUCTION IN FLOODPLAIN	N/A

MSS Utility of West Virginia  
 1-800-245-4848  
 West Virginia State Law  
 (Section XIV: Chapter 24-C)  
 Requires that you dig in the state of  
 West Virginia.  
**IT'S THE LAW!!!**

**811**  
 Know what's below.  
 Call before you dig.



**Design Certification**  
 The drawings, construction notes, and reference diagrams attached hereto have been prepared in accordance with the West Virginia Code of State Laws, Title 20, Chapter 24-C, Section 24-C-2. The information reflects a temporary file of record. The completed filing process proposed file shall be filed.

- Well Location Restrictions:**
- All pads and measure PI complies with the following restrictions:
  - 200' from an existing well or developed spring used for human or domestic animals
  - 420' occupied dwelling or farm greater 2000 SF (used for poultry or dairy measured 100' from edge of disturbance to windows, porches, screens, natural or artificial lake pond or reservoir)
  - 200' from edge of disturbance to naturally reproducing flow streams
  - 100' of setback of ground water intake to of public water supply.

SHEET INDEX	
COVER SHEET / LOCATION MAP	1
AS-BUILT SITE PLANS	2-4
AS-BUILT ACCESS ROAD PROFILE	5

**As-Built Certification:**  
 These drawings have been prepared from actual field surveys and reflect the locations and as-built conditions known to exist following construction of this site, to the best of my knowledge.

Allegheny Surveys, Inc.  
 172 Thompson Drive  
 Bridgeport, WV 26330  
 (304) 848-5035



**Hornor**  
 1908 Bros. Engineers  
 Civil, Mining, Environmental and  
 Consulting Engineering  
 1908 Bros. Engineers  
 1908 Bros. Engineers  
 1908 Bros. Engineers



COVER SHEET / LOCATION MAP  
**HUBERT DRILL PAD SITE**  
 TENMILE DISTRICT  
 HARRISON COUNTY, WV

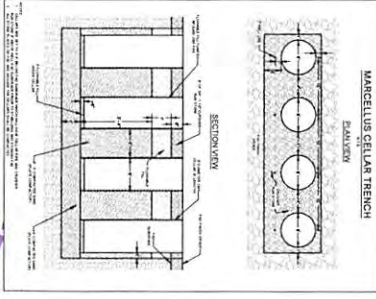
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 CHECKED BY: [Name]  
 APPR. BY: [Name]

03/10/2017



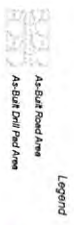
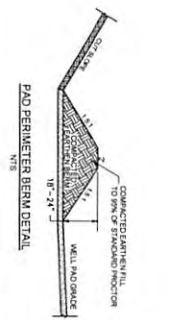
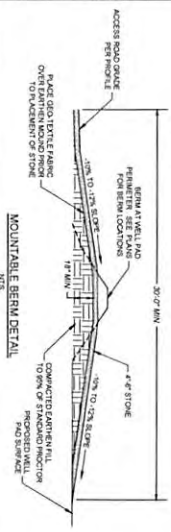
# AS-BUILT SITE PLAN 3

MANUFACTURING		WATER TREATMENT		WATER TREATMENT		WATER TREATMENT		WATER TREATMENT	
MANUFACTURING	MANUFACTURING	WATER TREATMENT	WATER TREATMENT	WATER TREATMENT	WATER TREATMENT	WATER TREATMENT	WATER TREATMENT	WATER TREATMENT	WATER TREATMENT
MANUFACTURING	MANUFACTURING	WATER TREATMENT	WATER TREATMENT	WATER TREATMENT	WATER TREATMENT	WATER TREATMENT	WATER TREATMENT	WATER TREATMENT	WATER TREATMENT



**WVDEP 006  
ACCEPTED AS-BUILT**  
4/7/2016

- MONITORING REQUIREMENTS**
- USE MANUAL OR AUTOMATIC MONITORING
  - MONITORING EQUIPMENT TO BE INSTALLED WITHIN 100 FEET OF MONITORING POINT
  - MONITORING EQUIPMENT TO BE MAINTAINED AND RECALIBRATED AS NECESSARY TO REMOVE ACCUMULATED BIAS



As-Built Certification:  
These drawings have been prepared from actual field surveys and reflect the locations and as-built conditions known to exist following construction of this site to the best of my knowledge.

DATE	REVISIONS
12-28-2013	AS-BUILT SITE PLAN
12-28-2013	REVISED AS-BUILT TO SHOW CONSTRUCTION OF MARCELLUS CELLULAR TRENCH
01-28-2014	AS-BUILT PERIMETER BERM
01-28-2014	AS-BUILT MOUNTAIN BERM

DATE	REVISIONS
06-27-2013	AS-BUILT SITE PLAN
12-28-2013	REVISED AS-BUILT TO SHOW CONSTRUCTION OF MARCELLUS CELLULAR TRENCH
01-28-2014	AS-BUILT PERIMETER BERM
01-28-2014	AS-BUILT MOUNTAIN BERM

AS-BUILT SITE PLAN 3  
**HUBERT DRILL PAD SITE**  
TENMILE DISTRICT  
HARRISON COUNTY, WV



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172 Thompson Drive  
Bridgeport, WV 26330  
(304) 848-5035



03/10/2017